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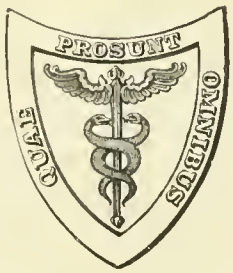

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SPECIAL ARTICLES.

SANITARY ASPECTS OF THE PANAMA AND NICARAGUA CANALS.

BY GEORGE A. SOPER, PH.D.,
OF NEW YORK.

THE Isthmian Canal Commission, appointed June 19, 1899, to investigate the practicability and feasibility of various projects for constructing a ship canal across the Central American Isthmus, have submitted their report to the Congress of the United States. While the matter stands before the representatives of the people and a final choice between routes is still open, it is of interest to inquire from a disinterested standpoint into the conditions which make for and against health in the countries and along the routes which are under consideration.

Upon the question of liability to, or immunity from, disabling diseases rests the problem of labor, and all persons are agreed that the greatest difficulty to be encountered in the construction of the canal will be the procurement of an adequate supply of laborers and the preservation of their health and efficiency. In view of this fact it is rather curious that the exhaustive report of the Isthmian Canal Commission should not have discussed the question of health more thoroughly. In their report of 263 pages less than a page and a half is devoted to hygiene and in the 40 appendices which accompany the report there is no discussion of the subject presented.

Not only is the question of health a factor to be considered in the construction of the canal, but when the canal is completed the rôle of this great waterway in promoting or endangering public health will be a subject of immense commercial importance.

General Description of the American Isthmus.—The Central American Isthmus in the most extensive meaning is about 1,400 miles long and extends from the 77th to the 95th meridian of longitude and from the 8th to the 18th parallel of latitude. The 9th degree of latitude nearly bisects the route of the proposed Panama Canal, while the 11th parallel cuts that of Nicaragua. The general direction of the Isthmus is from southeast to northwest, the first 600 miles to the eastward being comparatively small in width. It varies from a minimum of barely 30 miles to a maximum of 120 miles. The land is of volcanic origin and consists of mountain ranges which unite the Andes on the south with the great chain of mountains which extend along the western border of the United States. Below the mountains are many plateaus, plains and small stretches of land, some of which are but slightly elevated above the level of the sea. The most available routes for a canal across the Isthmus are considered to be the Nicaragua and Panama lines, which would have a length of 183.66 miles and 49.09 miles respectively.

Most observers writing on the health conditions natural to the low lands of the Isthmus describe the region as unhealthy to the natives and peculiarly fatal to Europeans. Since the period of the Spanish conquest many attempts have been made to colonize Central America, but the foreigners of Spanish extraction are the only ones who have been able to withstand the climate with even a tolerable degree of success. The natives are described as inferior in the social scale, of a wan, sallow tint, with softness and puffiness of the tissues, poverty of the blood, extra large development of the stomach and with a tendency toward congestion of the liver and spleen. This is accompanied by a state of languor, dulness of the intelligence and of the entire nervous system. Near the sea and along the lines of the proposed Panama and Nicaragua Canals, much of the land is low and comparatively flat, with sluggish water courses and all the characteristics of a tropical vegetation. Putrid emanations from decomposing organic matters prevail everywhere and their deleterious effects, considered not as agencies of specific diseases but more particularly as unwholesome gases, are evident.

The physiological effects often observed in the tropics prevail on the Isthmus. The large amount of moisture which prevails in the air lessens evaporation from the skin and lungs, and this condition, with the continuous heat, shows its effects in loss of appetite, depression of spirits and in disorders of the kidneys, stomach and intestines. In new arrivals the body-heat may reach an excess of 1° F. above normal and frequently exceeds the temperature of the outside air. As a rule, however, the atmosphere is much warmer. This causes the metabolic processes which in northern climates turn a part of the food materials into heat to be reversed, and the vital functions are then called upon to neutralize the excess of heat received in order to maintain the body at a normal temperature. This throws additional work upon the excretory organs which, under other conditions, would be concerned in throwing off only a portion of the products of the food absorbed. The excess of work and alteration of functions described are important predisposing causes of disease as are the following physiological effects of hot, moist climates: a reduction of the pulse-rate, decrease in respiratory action, diminution in the number of red blood-corpuscles, increase in perspiration, reduction in saliva, gastric and pancreatic juices and bile.

Health Conditions Along the Panama Route.—At Panama the seasons are divided into two tol-

erably well defined periods: the dry, or winter, and the wet, or summer, seasons. By this accidental concurrence of the seasons of maximum moisture and maximum heat, the humidity and effluvia from marshes and swamps reaches its greatest possible amount.

For 55 per cent. of the time the winds blow from the northeast and northwest, and 35 per cent. of the time from the southeast and southwest.

The dry season includes the months of January, February, March and April, the rainy season occupying the remaining eight months of the year. During the dry season the average temperature at Colon for six years, 1882-7, was 79.5° F., with a monthly maximum of 90.9°, which occurred in January, and a monthly minimum of 68.4°, which was recorded for the same month. During the rainy season the maximum average temperature for any month occurred in October with a record of 91.9° F. The minimum of temperature for any month of the year was 66.9° F. for August.

The hourly variation in temperature is greatest during the dry season, when the change is, on an average, 7° F. between 4 P. M. and 7 A. M. each day. In the rainy season this difference is 5° F.

The humidity at Colon in 1881 was, on an average, 86 per cent. during the rainy season and 77 per cent. during the rest of the year. Only limited data are available concerning humidity, but the probability is that it is very high at most points on the Isthmus. As the climate of this insular country depends partly upon the influence of the sea, the temperature of the water of the Atlantic Ocean and that of the Pacific is interesting. On the line of the Panama Canal the temperature of the Atlantic is generally 9° F. higher than the Pacific in February with a difference of 1° F. in September. At Colon the mean temperature of the ocean is nearly that of the air, 79.90° F.

The barometric pressure is very uniform, especially in the dry season, from which it appears that severe storms are uncommon; yet northers occur occasionally and severe hurricanes have been known on the Atlantic coast.

As a result of fifteen years' records at Colon the annual precipitation in inches which was measured reached a maximum of 154.89 with a minimum of 116.36 and a mean of 130.20. Rainfall records for four years at Panama show a maximum of 84.73 inches, a minimum of 45.59 inches, and an average of 66.77 inches per year. At Culebra the records for three years showed the rainfall per year varied from 64.25 inches to 98.97 inches.

As to the forms of disease most commonly met with, Griswold says that four-fifths of all sickness at Panama are due to fevers. Severe bilious fevers, congestive fevers and Chagres fever are not uncommon. According to Buel, the most sickly period is September, October and November, during which time dysentery is very common, as is also a high degree of bilious fever which, in malignity and fatality, falls little short of yellow fever. Foreigners seldom, if ever, acquire the same immunity from local diseases as that enjoyed by the natives; they are frequently attacked by febrile disorders and in the interim suffer from the depressing and debilitating effects of the climate. In March, April and May fevers are at their minimum. Dysentery is common at the end of the rainy season and at the beginning of the dry season. Phthisis is prevalent among the natives, especially along the coasts. According to Wallis, "smallpox, yellow fever and paludal fevers in their infinite varieties and forms are never absent in these inter-tropical regions where they are truly endemic." Nelson, after an experience of five years at Panama, gives his approval of the statement long made with reference to the Isthmus, that it is the "Grave of the European." It has also been called the "Pest House of the Tropics," and Bigelow says that here truly "Life dies and death lives."

In the contracts let by the old Panama Canal Company, the latter was compelled to supply the labor. The total population of Panama was estimated at not above 150,000, and, as many thousand workmen were required for the work upon the canal, it was necessary to import labor from abroad. In the effort to supply the demand, many laborers were brought from the Island of Jamaica, but of these many soon fell sick and died, and a large number of the remainder left the work to escape a similar fate. Other workmen came from Carthagena, the British Antilles and the lower Mississippi Valley. Of all the labor employed, the most hardy workers, as regards ability to endure hardship and resist disease, were a tribe of Indians from the Magdalena River.

The sickness and loss of life among the men engaged at work upon the canal has been variously stated. Davidson declares that of a force of 7,000 men, the company reckoned that about 1,000 men were always in hospital. From other sources we learn that the sickness and death-rate among the laborers were very high. In Panama and its vicinity 37 engineers out of less than 100 are said to have died during the months of March and April, 1882. An observer declares "there was not a single French engineer who had been able to attend to the work beyond one year and a half, although the contract called for two." In September, 1884, it is said the Canal Company buried 654 officers and men. There were many sanitary abuses when the canal work was first begun, and the method of charging the contractors for the care of the men in hospital no doubt caused the laborers to be kept at work when they should have been under medical care.

The health conditions as officially reported by French authorities, do not show the high mortalities from diseases incident to the climate which have been indicated by travelers and other independent observers. But Heffenger declares that it was impossible for him to gain access to the health records of the Panama Canal Company

and that the impression gained by him after investigating the matter privately was, that the public reports were garbled and incorrect. Dr. Heffenger states that he was informed by a leading physician of Panama that in the first eleven months, during which preliminary work on the canal was under way, 65 officers and 800 men died of disease.

It is recorded by Liddell that of 382 patients treated by him between the middle of June and the succeeding May, 250, or more than two-thirds, were suffering from remittent fever with bilious, gastric or enteric complications. Referring to the importation of labor for the Panama Railroad, Liddell says that the services of laboring men from the United States could not be counted on for three successive months. Before the end of the second month one-half the force was on the sick list or enfeebled by sickness already sustained.

In this connection it is interesting to note that the Panama Railroad Company, which has had fifty years experience, along the line of the Panama Canal grants to its white employees from the United States two months vacation every year.

The route of the Panama Canal follows low-lying valleys from the Atlantic terminus to a point within a few miles of the Pacific. Here, at what is known as the Culebra ridge, there is a section of several miles of mountain through which a deep excavation must be cut. It is probable that a large number of laborers would have to occupy the position for eight years. Next in importance are excavations and other work between Culebra and the Pacific. There is a considerable diversity in the engineering problems connected with the Panama route, but the labor would be comparatively concentrated. Swamps, with the rank vegetation peculiar to the tropics, abound along most of the line. To the cost of construction the Isthmian Canal Commission has added 20 per cent. to cover engineering, police, sanitation and general contingencies. The same percentage has been allowed for the Nicaragua route. How much would be devoted to sanitation is not stated.

Health Conditions Along the Nicaragua Route.—Some 280 miles north of the Atlantic entrance to the proposed Panama Canal is the city of Grey Town, the eastern terminus of the projected route of the Nicaragua canal. Topographically the country traversed by the line of the Nicaragua Canal consists of a great, central, basin-like depression, enclosed by coastal mountain ranges, whose peaks occasionally attain a height of from 5,000 to 7,000 feet. The Central Basin is occupied by two great lakes, the waters of which flow eastward through valleys which open diagonally to the Atlantic Ocean. The central depression descends to the Pacific through a short and narrow valley in the western coast range. The route is marked by swamps, lagoons and river bottoms heavily overgrown with rank tropical vegetation. By far the largest share of the estimated cost of constructing the Nicaragua Canal is allotted to that part of the line which lies east of the lakes. Here are located extensive river and harbor improvements, several locks and the Conchuda Dam, whose site is between Ochoa and Lake Nicaragua. It is thought that the canal would be eight years in building.

Much less is known about the climate and health conditions of Nicaragua than Panama. According to all sources of information, the temperature is fairly uniform throughout the year. The report of the Isthmian Canal Commission just published states that the thermometer seldom reaches 95° F. nor falls below 70° F. The humidity is usually high, particularly on the eastern slope. As recorded for several stations in 1898 the humidity was never below 58 per cent. and generally above 80 per cent. It has been declared that the locality is beyond the cyclonic disturbances of the West Indies and that heavy storms are rare, yet authentic accounts exist which show that northers and other similar atmospheric disturbances have occurred at infrequent intervals along the Atlantic coast. The northeast trade winds predominate.

Rainfall records show that there is no definitely wet nor dry season on the eastern slope, but in the region of Lake Nicaragua and on the west coast there is a distinct dry season from about the 1st of December to the middle of May, during which rain seldom falls. During the dry season the prevailing winds blow from the Atlantic coast and the moisture contained in the atmosphere is precipitated before it reaches the central and western watersheds.

The rainfall at the Atlantic end of the Nicaragua Canal route is the heaviest yet recorded for the American continent. The annual rainfall at Grey Town averages 260-270 inches and has twice reached nearly 300 inches. Points at which rainfall was noted in 1900 were: Grey Town, 266.10 inches; Ochoa, 158.83 inches, and Fort San Carlos, 89.34 inches. In 1898 the rainfall at San Juan (Grey Town) was 201.64 inches; Ochoa, 170.84 inches, and Brito, the Pacific terminal, 94.88 inches. The heaviest recorded fall of rain in a short period occurred at Lake Silico, November 4, 1899, when 10.5 inches fell in six hours, an average of 1¾ inches per hour. On the same date 12.48 inches of rain fell in 24 hours at Grey Town. A fall of four or more inches per day is not uncommon.

It is the testimony of disinterested observers that both coasts of Nicaragua are malarious with a considerable amount of suffering from malarial cachexia and enlargement of the spleen. Dysentery is one of the severe diseases of the country. A prevalence of fever of the pernicious type has been noted particularly in the western portion of the country. The fever is generally hepatic and jaundice and hematemesis are usually present. The mortality from pernicious fever is very high. As this disease carries so many of the characteristic symptoms of yellow fever, Stitt declares that able physicians frequently pronounce the two diseases to be identical.

Among the diseases not epidemic but prevalent, may be mentioned those of an enteric nature, affections of the liver such as hyperemia and tropical abscess, intermittent and remittent fevers and pulmonary tuberculosis. The climate of the lake region is said to be particularly unfavorable to persons suffering from phthisis. The yearly reports made by the Maritime Canal Company of Nicaragua to the Secretary of the Interior of the United States, convey the impression that the health of the employees engaged upon the canal construction was satisfactory. About 1⅓ per cent. of those actually in hospital died, including the patients who were admitted for the treatment of accidental injuries. About 51 per cent. of all cases of sickness were fevers; there were no deaths from enteric diseases, and only two-thirds of 1 per cent. of the cases in hospital died of diseases contracted in the country.

Commenting upon the records of the Maritime Canal Company the Isthmian Canal Commission of 1899-1901 observes that "These operations, however, were of a preliminary character, employing but a limited number of men. It is probable that when 10,000 or 20,000 men are assembled, and the rank soil is being turned up over a widely-developed line of works, the experience will be different." There is very little impartial or antagonistic criticism available concerning the health conditions which obtained at the works of the Maritime Canal Company, for very little attention has been given to this project except by Americans who have long been prejudiced in its favor.

Comparison Between the Panama and Nicaragua Routes.—A comparison of the conditions which make for and against health, along the proposed lines of the Panama and Nicaragua Canals may be summed up conveniently under the two following heads:

I. Which route would probably be freer from disease during the work of construction?

II. Which canal would be more favorable to health after it was built?

In discussing these topics it will be convenient to note some of the most unfavorable conditions common to both routes and suggest very briefly means by which the rates of sickness and death may be kept as low as practicable.

I. *Health Conditions During Construction.*—The greatest difference in climate between the lines of the Panama and Nicaragua Canals is in rainfall. Panama has a dry season of four months with a rainy season of eight. No rain at all falls during the winter months and in the rainy season the precipitation occurs mostly as heavy showers which come on in the afternoon. On most of the Nicaragua line, particularly at the site of the great dam and about Grey Town, rain falls throughout the year. The immediate effect of the constant rain in Nicaragua is to keep laborers and others exposed to the elements in a drenched condition. Wet clothes taken off at night are put on damp the next morning and worn so through the day. Sleeping garments removed after a night's rest are placed in rubber receptacles so they may be dry at night. The effect upon health of this constant wetting may be imagined. It is not reasonable that the human system should be able to long stand the debilitating effects which the wet apparel produces. Diseases of the respiratory organs, rheumatism and fevers are consequently invited by the climatic conditions which occur between the lakes and the Atlantic terminus of the Nicaragua Canal. The western part of the route appears to be very similar to the Panama country so far as climate is concerned.

The range of temperature, so far as the records at hand indicate, is somewhat greater at Nicaragua than at Panama. Daily changes of temperature, however, do not seem to be quite so marked. The humidity is higher, and the soil, by reason of a greater length of low swampy territory along the Nicaragua line, makes the northern route less acceptable than the Panama Canal would be from this standpoint of health.

There is little difference in the nature of the diseases which are indigenous to the countries along the two routes. The history of the Panama Canal country is a black one, but in considering the records of sickness along this route, it must be remembered that grave sanitary errors were committed from the beginning, and that unfavorable accounts arising probably in some cases from commercial and national prejudices have been collecting for a long time. The situation is very different with respect to Nicaragua. The country is comparatively new and no such damage to its reputation has occurred. If it is said that but little disease can be charged against Nicaragua the reason is probably because little experience of any kind has been had there.

From the evidence at hand it is inferred that dysentery, malarial and other fevers are as much at home under the conditions of climate and soil which exist in Nicaragua as they are at Panama and that smallpox and many minor tropical diseases are probably endemic in both countries. The climate in each case predisposes the native and foreigner to sickness and favors the progress of the worst diseases which may be brought into the country.

The ordinary habits of the natives and visitors who stay any length of time on the Isthmus are not calculated to increase bodily vigor and natural resistance to disease. Carelessness to exposure, indifference to obvious dangers of diet, lack of proper attention to bodily irregularities and a strong appetite for spirituous liquors are conditions which render the people of the Isthmus especially liable to disease.

Following the precedent established by the Suez Canal enterprise and adopted by the promoters of the Panama and Nicaragua Canals, a department of health will in all likelihood be organized. The work which will naturally come before this sanitary organization will include the procuring and protection of pure water supplies, and the prompt and permanent disposition of the daily wastes

which will occur among the thousands of laborers who will be gathered together in camps and settlements. The housing and provisioning of the men will no doubt form a division of the work, as will the regulation of their hours and habits of toil and recreation. Medical inspections will be required in order to detect the presence of diseases and insanitary conditions, and hospitals with branches along the line will be necessary to care for those who will inevitably suffer from accident and sickness. If an arrangement can be made by which the physical condition of the laborers is examined, and perhaps vaccination practised, before they are allowed to embark from their home ports for the works, the subsequent labor of the sanitary organization will be greatly lightened.

The type of physique which has been found most able to resist the unhealthful conditions of the climate of the Isthmus closely approaches the best types already found there and in the neighboring islands and on the Gulf coast of the United States. The foreigner least susceptible to disease in these tropical countries is a man of medium stature, square frame, dark complexion, thick skin, and mature age.

II. *Health Conditions After Completion of the Canal.*—The health conditions which are likely to obtain at the canal after its completion are worthy of consideration since a large population will probably gather along the route and an immense amount of traffic will pass through the great waterway. Tributary to the Nicaragua route there is a naturally rich and extensive country which would be opened up to traffic. On the line of the Panama waterway the country is rugged, sparsely settled and much less productive. At the present time the population along the Nicaragua route is slight and cities near its terminals are not yet built. At Panama a railroad which has been established for fifty years nearly parallels the line of the canal. Two well-established cities are situated at the ends of this route.

After the canal is built, infectious diseases will almost inevitably be brought to the people of the Isthmus by the large amount of traffic which will result. Vessels will come from the cholera centers of Hong Kong, Calcutta, Bombay, Madras, Singapore and the Straits settlements; from the plague foci of China, India and Japan and from the yellow-fever ports of Brazil, Mexico and those islands of the West Indies which lie between 61° and 85° west longitude.

Comparing the two routes across the Isthmus from this standpoint, it is plain that the Panama Canal has a very marked advantage over the line which would pass through Nicaragua. It is much shorter. Ships in transit would be able to pass from ocean to ocean by the Panama Canal in twelve hours, while by the Nicaragua Canal thirty-three hours would be consumed. It may be urged that communication with the land in either case could be avoided, and that an efficient sanitary police could effectually protect the people and shipping against mutually communicating disease. Unfortunately, further thought shows that this would be a difficult matter. The temptation for sailors and others to seek the relaxation of a few hours on shore in the middle of a long voyage and under conditions of a peculiarly alluring nature while the ships are slowly passing through the locks and narrow reaches of the canal is not to be denied. If to this temptation is added the certainty of being able to overtake vessels by railway after a night's debauch it is not clear how the Isthmus can certainly be prevented from becoming a focus of disease as well as a focus of trade.

It is extremely important that this great highway of commerce should be kept entirely free of epidemics of infectious diseases for the burdens which would be put upon shipping in the event, for example, of cholera becoming prevalent along the canal would go far to offset the advantages to be gained by making the short cut from ocean to ocean. Nor would the fact that a vessel had loaded her cargo at a healthy port relieve her from suspicion of carrying disease. It is doubtful if the quarantine officers of any healthy city would admit to *pratique* a vessel which had passed a day and a half in an infected country, whether the original ports of departure of that ship had been in a healthy condition or not.

Another effect which the opening of the canal is liable to have upon public health will be that due to the improved chances of carrying disease between ports which will be brought nearer together by the canal. The southern ports of the United States and the Pacific coast will be brought in much closer contact with the unhealthy cities of South America and the East by the opening of a trans-Isthmian canal. The obvious remedy here is the cleaning up of these unhealthy centers; but meanwhile the insanitary condition of many of the ports of trade, both in the United States and South America, makes the danger dependent upon a closer and more extensive traffic among them.

Summary of Conclusions.

The principal conclusions reached in the foregoing inquiry may be conveniently brought together in the following catagorical order:

1. Both the Panama and Nicaragua routes pass through a country which is extremely unfavorable to health.

2. The climate of Nicaragua and Panama differ chiefly with respect to rainfall, the precipitation on the Panama route being distinctly the less unfavorable to health.

3. Considerations of soil, topography and the nature of the engineering work to be done are in favor of Panama. Fewer men would be required; they would be concentrated and, hence, their health could be more easily protected.

4. There is practically no difference in the nature of the diseases to be anticipated, nor in the precautions to be taken to protect health in either case.

5. After construction, the difficulty of control-

ling health conditions along the line would be greater on the Nicaragua route.

6. The shorter Panama route would cause passing vessels to be exposed to the possibilities of infection for a much briefer interval. The danger of communicating diseases to and from the Isthmus is fairly represented by the difference in time which it would take ships to pass from ocean to ocean by the two routes.

7. The likelihood of the canal becoming a disease focus, thus interfering with commerce, by requiring all healthy ports to quarantine against ships passing the Isthmus, is much greater in the case of Nicaragua than Panama.

8. Although the Panama health records are much darkened by heavy losses of life by disease, this is not to be construed as evidence of the existence of conditions favoring a greater immunity from sickness along the Nicaragua line. More lives have been lost at Panama because more lives have been unnecessarily exposed. The experience of Panama is to be taken as a warning of conditions which are liable to be repeated on either route.

9. Whichever canal is selected, extraordinary care will be required to maintain satisfactory health conditions during construction and after completion of the work.

10. Plans and preparations in detail for the organization of an efficient sanitary and medical department should be made as early as possible so that the measures necessary for the prevention of disease may be carried on in harmony with the engineering projects.

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Indications for Amputation.—In cases of severe phlegmon, gangrene or sepsis, the question of amputation is often difficult to decide. H. Wolff (Münch. med. Woch., Nov. 26, 1901) lays down the indication as follows: (1) When, despite free incision, the acute progressive character of the infection and the general symptoms persist; (2) when the local symptoms have come to a standstill and life is still endangered through the absorption of bacteria or their toxins; (3) when the local and general process shows signs of abating, but the limb is useless to the owner in the end.

THE TRIAL, EXECUTION, AUTOPSY AND MENTAL STATUS OF LEON F. CZOLGOSZ, ALIAS FRED NIEMAN, THE ASSASSIN OF PRESIDENT M'KINLEY.

BY CARLOS F. MACDONALD, A.M., M.D.,

OF NEW YORK;

PROFESSOR OF MENTAL DISEASES AND MEDICAL JURISPRUDENCE IN THE UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE; EX-PRESIDENT OF THE NEW YORK STATE COMMISSION IN LUNACY.

The terrible shock which the assassination of President McKinley by Leon F. Czolgosz at Buffalo, New York, on September 6, 1901, imparted to the entire civilized world, and which naturally engendered in the public mind a mingled feeling of horror, vindictiveness and revenge—a feeling which was exceeded only by the profound sense of sorrow and depression which took possession of the people when a few days later it was realized that despite the highest efforts of surgical and medical skill a fatal result to the distinguished victim was inevitable—naturally suggested, both to the lay and medico-legal mind, the need of inquiry as to the mental status and responsibility of the perpetrator of so repulsive and atrocious an act. Moreover, there are many persons who are disposed to hold that the enormity of such a crime is in itself sufficient evidence to warrant the opinion of the existence of insanity, merely because it seems to them inconsistent with the principles of ordinary rational conduct, even though aside from the act itself there be nothing in the entire life and conduct of the individual that is suggestive of mental disease. On the other hand, there are many who, in view of the magnitude of the crime, would oppose the granting of exemption from the ordinary consequences of capital offences even though the offender were a raving maniac. Suffice it to say that the position taken by such persons, in either case, is untenable and would be an untrustworthy test of responsibility as regards the ends of justice, whether viewed from a legal or a medical standpoint.

It need scarcely be said that the question as to whether or not a certain act is the offspring of mental disease, cannot always with safety be determined by the act itself, but must be determined by all the attendant circumstances leading up to and surrounding the act.

"An act of violence," says Ray, "must not be attributed to insanity merely because to a person of high culture and correct morals, it seems inexplicable on the ordinary principles of human conduct."

According to the Code of Criminal Procedure of the State of New York, Section 21, the legal test of mental unsoundness, as applied to criminal cases, is based on the assumption that insanity is a question of law to be determined by the Court, and that the question of responsibility in mental disease hinges upon a knowledge of right and wrong as to the particular act at the time it was committed; whereas medical science holds that insanity, in its relation to crime, is always a question of fact to be determined like any other fact in evidence, aided, of course, in such case, by the interpretation of expert opinion evidence, and that whenever its presence can be so determined, the accused should be absolved from responsibility, irrespective of the form or degree of his mental disease or the nature of the act committed. "All that medical science has to do in any such case," says Dr. John P. Gray, "is to say whether the deed springs from disease or not. If it does not, the man is responsible, however, ghastly, seemingly purposeless or vindictive the act may be." In other words, medical science holds that the whole question of responsibility should rest upon the pres-

ence or absence of mental disease, and not upon a knowledge of right and wrong as regards the nature and consequences of the act in question, and that that which in fact is a condition of mental disease cannot in law be a condition of mental health.

The question to be determined, then, in the case of Czolgosz, from the legal standpoint, as embodied in the Code of Criminal Procedure of the State of New York, was: When Czolgosz shot the President did he know the nature and quality of the act he was doing, and that the act was wrong? If this question could be determined in the affirmative, then he was responsible under the law and punishable for the offense which he committed, even though he was medically insane, so to speak.

On the other hand, the question to be determined from the standpoint of medical science was: Was Czolgosz at the time he committed the act a victim of mental disease or mental unsoundness? If so, according to the dictum of medical science, he was not responsible and hence not punishable for the act he committed. These are the sole questions upon which the guilt or innocence of the accused must rest, whether in the eyes of the law or in the judgment of medical science, and it follows logically that if he were guilty of crime owing to the absence of mental disease, he was equally guilty within the intent and meaning of the statute. Such being the case the subject of the responsibility of the accused resolves itself into a question of health or disease—sanity or insanity. Hence the application of the legal test may be dismissed from further consideration here and we may proceed to consider the question of his responsibility from a medical point of view.

The Trial.

The trial of Czolgosz which took place in the city of Buffalo, N. Y., on September 23-4, 1901, Hon. Truman C. White, Presiding Justice, was neither attended by delay "nor harassed by the trivial technicalities of the law." The "machinery of justice" moved so smoothly and so rapidly that the jury was procured, the case tried and a verdict of guilty rendered within a period of two court days with sessions from 10 to 12 o'clock in the forenoons and 2 to 4 o'clock in the afternoons, the time actually occupied being about eight and a half hours in all. The proceedings were marked by no melodramatic or sensational episodes or unseemly wrangle among counsel; while the fact that, under the extraordinary circumstances, the trial was not anticipated or interrupted by any riotous demonstration against the prisoner—any attempt at mob or lynch law—when he appeared in public, affords striking proof of the respect for law and order which prevails in the community where the trial was held. Czolgosz was brought into court closely guarded by a double cordon of police and handcuffed to an officer on either side. He was neatly dressed and cleanly in appearance, his face clean-shaven and hair neatly combed.

The preparation and trial of the case on the part of the people by the Hon. Thomas Penny, District Attorney, and his assistant, Mr. Haller, was well nigh faultless. Shortly after his arrest the District Attorney procured from Czolgosz a statement several pages in length which was taken down in longhand, in narrative form, each page of which he signed after himself making corrections and revisions as to matters which he claimed the reporter had misapprehended. This statement gave in detail facts concerning his premeditations and preparations for the crime, also his movements for some time prior, and up to the time of the shooting. The District Attorney also within a few hours after the crime was committed, proceeded to put the prisoner under the observation of local experts in mental disease, namely, Drs. Joseph Fowler, Police Surgeon, Floyd S. Crego and James W. Putnam. These physicians had free access to him, down to and during the trial—covering a period of nearly three weeks during which they examined him repeatedly and made a careful study of his case with reference to his mental condition. The District Attorney also permitted the experts on either side to confer together freely, and allowed those for the defense to have free access to all facts and information relative to the case in his possession—a proceeding which in effect was equivalent to the appointment of a commission of five experts—three for the prosecution, and two for the defense—to determine the prisoner's mental condition. This course on the part of the District Attorney, marks a new departure in the methods of getting expert evidence in criminal trials where the question of mental responsibility is involved, which is to be highly commended as a practical measure tending to eliminate much superfluous testimony and at the same time to minimize the danger of contradictory expert opinions.

In view of the great importance of the case, it is regrettable that no experts were called to testify at the trial as to the prisoner's mental condition in order that it might appear on the record of the trial that his mental state was inquired into and determined by competent authority. Had the experts on either side been given the opportunity of thus stating officially their unanimous conclusion, together with the grounds on which it was based and the methods by which it was reached, it would have left in the public mind no room for reasonable doubt as to its absolute correctness and that it had been arrived at only by the rules of professional conduct governing the examination of such cases.

The attorneys assigned by the court to the defendant, at the request of the Bar Association of Erie County, were ex-Judge Loran L. Lewis and Robert C. Titus, both prominent lawyers and highly-respected citizens of Buffalo. For obvious reasons these gentlemen were reluctant to undertake what they regarded as a most distasteful task, and consented to do so only from a high sense of duty to the public, at the urgent solicitation of the President, Hon. Adelbert Moot, and other prominent members of the Bar Association, on Saturday, September 21st, preceding the trial, which began on Monday, the 23d.

Respecting the defense, it appears that substantially no preparation was made beyond a fruitless effort of counsel to confer with the prisoner and the examinations made of him at their request by Dr. Hurd and the writer with reference to his mental condition, and a verbal statement by them to counsel of their conclusion that he was not insane. It also appears that no plea was entered by the attorneys for the defense, but Czolgosz, speaking for the first time in court, entered a plea of guilty to the indictment, which plea the court promptly rejected and directed that one of not guilty be entered on the record for the defendant.

Each juror on qualifying said, in answer to the usual question, that he had formed an opinion as to the guilt of the prisoner, but that his opinion could be removed by reasonable evidence tending to show that the defendant was innocent. And yet, to one accustomed to being in court and observing jurors when qualifying, it was difficult to avoid the impression that each of the jurors in this case held a mental reservation to convict the prisoner. Had Czolgosz been on trial for the murder of a common citizen, instead of the President, it is safe to say that not one of the jury as completed would have been accepted by the defence; and instead

of getting a jury in approximately one hour and a half, that feature of the trial alone would probably have occupied several days.

Having in view the nature and importance of the case, the fact that no testimony was offered on the defendant's behalf and that practically no defence was made, beyond a perfunctory examination of jurors and a mild cross-examination of some of the people's witnesses, which was limited to efforts to elicit information respecting the President's condition during his illness and of his body after death, and a summing up by one of the counsel—Judge Lewis—which consisted mainly of an apology for appearing as counsel for the defendant and a touching eulogy of his distinguished victim, renders the case in this respect, a unique one in the annals of criminal jurisprudence.

The jury retired for deliberation about 4 p. m. and returned in less than half an hour with a verdict of guilty of murder in the first degree. Czolgosz heard the verdict of the jury standing and without appreciable display of emotion. Several of the jurors were interviewed after the trial and were reported to have said that the jury was in favor of conviction unanimously from the first and could have rendered a verdict without leaving their seats, but deemed it best to make a pretense of deliberation "for appearance sake." Czolgosz was remanded to jail for two days and on Thursday, September 26th, was sentenced to be executed by electricity at Auburn Prison in the week beginning October 28, 1901.

When Czolgosz returned to his cell after his conviction he ate a hearty supper and soon thereafter went to bed and slept continuously until midnight, when the guard was changed, when he awoke for a few minutes, and then slept again until 6 a. m., when he arose and took a short walk in the cell corridor, after which he made a careful toilet, and at 7:30 partook of a hearty breakfast. He talked freely, as usual, on ordinary topics, but maintained his usual silence respecting his crime and would not talk of the trial or the verdict. On Thursday, September 26th, he was removed from the Buffalo jail to the State Prison at Auburn, N. Y., where he was confined in a "death cell" until his execution took place.

The Execution.

Czolgosz was executed by electricity on the morning of October 29, 1901. The official witnesses, consisting of the Superintendent of State Prisons and other prominent New York State officials, several physicians, three representatives of the respective press associations, Mr. Spitzka and others, and the official physicians—Dr. John Gerin, Prison Physician, and myself—having been assembled in the execution room and having received the usual admonition from the Warden as to maintenance of order during the execution, the prisoner was conducted to the room a few minutes after 7 a. m. Every precaution was taken by the Warden, who had immediate charge of the execution, to minimize the opportunity for notoriety or sensationalism on the part of the prisoner as well as to insure that his taking off should be effected in an orderly and dignified manner.

As Czolgosz entered the room he appeared calm and self-possessed, his head was erect and his face bore an expression of defiant determination. The guards, one on either side, quietly and quickly guided him to the fatal chair, the binding straps were rapidly adjusted to his arms, legs and body, and the head and leg electrodes were quickly placed *in situ* and connected with the wire which was to transmit the lethal current through his body. These preliminaries occupied about one minute. Czolgosz offered no resistance whatever, but during the preparations addressed himself to the witnesses in a clear distinct voice in the following significant language: "I killed the President because he was the enemy of the good people—the good working people. I am not sorry for my crime. I am sorry I could not see my father." At this moment, everything being in readiness, the Warden signaled the official electrician in charge of the switch, who immediately turned the lever which closed the circuit and shot the deadly current through the criminal's body, which was instantly thrown into a state of tonic spasm involving apparently every fiber of the entire muscular system. At the same time, consciousness, sensation and motion were apparently absolutely abolished.

Two electrical contacts were made, occupying in all one minute and five seconds. In the first contact the electro-motive pressure was maintained at 1,800 volts for seven seconds, then reduced to 300 volts for twenty-three seconds, increased to 1,800 volts for four seconds and again reduced to 300 volts for twenty-six seconds—one minute in all—when the contact was broken. The second contact, which was made at the instance of the writer as a precautionary measure, but which was probably unnecessary, was maintained at 1,800 volts for five seconds. That conscious life was absolutely destroyed the instant the first contact was made was conceded by all of the medical witnesses present; also that organic life was abolished within a few seconds thereafter.

Czolgosz was pronounced dead by the attending physician and several of the other physicians present, after personal examination, in four minutes from the time he entered the room; one minute of this period, as already stated, was occupied in the preliminary preparations, one minute and five seconds in the electrical contacts, and the remainder of the time in examinations by the physicians to determine the fact of death.

The physicians present at the execution and at the autopsy were Drs. H. O. Ely of Binghamton, N. Y., W. A. Howe of Phelps, N. Y., G. R. Trowbridge of Buffalo, N. Y., W. D. Wolff of Rochester, N. Y., and C. R. Huntley of Buffalo.

The Autopsy.

The autopsy was made by Mr. Edward A. Spitka under the direction of the official physician, Dr. Gerin and myself. The examination occupied about four and a half hours and embraced a most careful gross examination of all the viscera, attention being especially directed to the brain and its meninges. The accompanying masterly description of the postmortem findings, and especially of the condition and anatomical structure of the brain by Mr. Spitzka, leaves nothing to be said here upon this point beyond the fact that the autopsy revealed no evidence whatever of disease or deformity of any of the bodily organs including the brain, which was normal in size, shape, weight and appearance and was well developed in all respects, a conclusion which was concurred in by all of the physicians present, several of whom had witnessed the execution.

In deference to the expressed wish of the relatives of Czolgosz, and for reasons of a sentimental nature on the part of the State authorities, the Prison Warden declined positively to allow any portion of the body to be removed from the Prison. Consequently, and regrettably, it was impossible for the examiners to retain honorable possession of any portion of the brain for microscopic examination and study. Accurate measurements, however, of the head and its appendages, of the face and of the exterior and interior of the skull, together with detail anatomical drawings and descriptions of the brain were made; also plaster moulds of

the head from which a cast was subsequently made and photographs of the same—full face and profile—taken. These measurements, together with plates of the drawings and photographs are presented in Mr. Spitzka's report of the autopsy.

In view of its great importance both to medical science and to medical jurisprudence, the writer regards it as fortunate that the State was able to secure the services of so able a brain anatomist and skilled operator and draughtsman as Mr. Spitzka to make the post-mortem examination.

The Mental Status.

On Thursday, September 19, 1901, I received a telegram requesting me to meet Mr. Adelbert Moot, President of the Erie County Bar Association, in Buffalo, New York, on the following morning. On my arrival in Buffalo the next day Mr. Moot informed me that he had sent for me for the purpose of requesting me to inquire into the mental condition of Leon F. Czolgosz, confined in the Buffalo jail under indictment for the murder of President McKinley, and whose trial was to begin on the following Monday. Mr. Moot further stated in substance that three local experts had already examined the prisoner for the District Attorney, but in view of the enormity of the offence and the fact that there obviously could be no legitimate defense other than insanity, it was deemed important, in the interests of justice, that his mental condition should be investigated by other experts acting in behalf of the defence, or at least independently of the prosecution, to the end that the prisoner should be accorded every legal right, there being no desire to convict him if he were not mentally responsible, and that I had been selected for this responsible duty. With a deep sense of the responsibility involved, I consented to act, provided it should be distinctly understood that I was not there as a partisan expert in behalf of either side, but simply in a professional capacity to aid in determining the real mental state of the prisoner, and providing further that my selection would be acceptable to the eminent counsel whom the Bar Association had selected for the defence, should they decide to accept that duty, a matter which was then undecided. On the following morning—Saturday—Mr. Moot informed me that the gentlemen referred to had consented to act and invited me to meet them in conference, which I did, and which resulted in their requesting me to proceed at once to examine into the prisoner's mental condition and to report my conclusion to them as soon as I had reached one. They also assented readily to my proposal to invite Dr. Arthur W. Hurd to become associated with me professionally in the case, Dr. Hurd being the Superintendent of the Buffalo State Hospital for the Insane and a competent alienist of large experience in mental diseases. It was also agreed that we should be allowed to confer freely with the District Atorney and with the experts for the people, after completing our personal examination of the prisoner. Being unable to establish communication with Dr. Hurd before evening of that day and in view of the short time intervening before the trial, I decided to make a preliminary examination of Czolgosz alone, and did so that afternoon in the District Atorney's office, first disclosing to him my identity and the object of my interview and informing him of his legal right to decline to answer any question I might ask him.

I examined him again on the following day, Sunday, in the jail, jointly with Dr. Hurd and in the presence of one of his guards who was questioned at length, respecting his observations of him in the jail, as to his habits of eating, sleeping, talking, reading, etc. We subsequently interviewed the District Attorney and the Superintendent of Police, General Bull, who gave us all the facts and information in their possession respecting the case. The statement which Czolgosz made to the District Attorney shortly after his arrest throws much light on his mental condition on the day of the crime, but that official deemed it his duty to refuse to allow me to publish it. We also conferred at length with the people's experts, Drs. Fowler, Crego and Putnam, who stated to us separately and in detail their observations and examinations of him. We also observed him carefully in the court-room throughout the trial.

After our examination of Czolgosz on Sunday, we reached the conclusion, independently of each other, that he was sane and we so informed his counsel on Monday morning before the trial began.

It should be said that owing to the limited time—two days—at our disposal prior to the trial and the fact that his relatives resided in a distant State and were not accessible for interrogation, we were unable to obtain a history of his heredity, beyond what he himself gave us.

Czolgosz, as he appeared at the time of my examinations of him at Buffalo, may be described as a well nourished, rather good-looking, mild-mannered young man, with a pleasant facial expression; features, regular; face, smooth-shaven and symmetrical; mouth and ears well formed and symmetrical; teeth, none missing but in poor condition from neglect; tongue, clean; palate, fauces and uvula, normal in appearance; eyes, blue and normal in expression; pupils, equal in size and normally responsive to light and accommodation; hair, light brown and slightly curly; stature, medium—five feet seven and a half inches—and weight (estimated) about 140 pounds. The extremities were in all respects normal. The external genitals were normal, excepting two small, flat, unindurated cicatrices on the mucous surface of the prepuce, probably the result of previous chancroids, although he denied having had venereal disease other than gonorrhea. There were no signs of specific nodes or periosteal tenderness over the usual sites of these lesions, nor was there any evidence upon the head or body of traumatism, excepting a slight deviation of the nose due to a blow which he received at the time of the assassination, and a superficial, perpendicular cicatrix on the left face which he said was the result of a slight injury he received when working in a barbed-wire factory. There were no tremors or twitchings of the facial muscles, tongue or hands. The pulse and temperature and skin were normal, as also were the special senses, knee reflexes, coordinating power and the sensory and motor functions. Finally, a careful inspection of the entire visible body failed to reveal the presence of any of the so-called stigmata of degeneration. The almost perfect symmetrical development—especially of the head and face—is a noteworthy feature in Czolgosz's case, although had deviations been found the fact would have had little weight as tending to show mental disease or degeneracy, as marked asymmetries, both cranial and facial, are frequently observed in persons who are quite sane and above the average in mental capacity.

In answer to questions he stated, in substance, that he was born in Detroit, Michigan, of Polish parents; that he was twenty-eight years of age, unmarried and a laborer by occupation; that he was a Romanist, originally, but had abandoned that faith several years ago because he no longer believed in it; that he attended the common schools as a boy and had learned to read and write; that he had used beer and tobacco, but not to excess; that he had done various kinds of unskilled labor, such as farming, factorying, etc.; that

his mother was dead and his father, one brother and a married sister were living; that so far as he knew there was no insanity in his family, and that he had not suffered any serious illness or injury during his life-time; that he had never been subject to fits, spasms or vertigo; that he usually ate and slept well, and that his bowels were always regular. He admitted having had sexual intercourse with women, but denied masturbation or other unnatural practices.

Careful inquiry failed to elicit any evidence of delusion, hallucination or illusion. When questioned as to the existence of enemies, persecutions or conspiracies against him, he replied in the negative. He evinced no appearance of morbid mental depression, morbid mental exaltation, or of mental weakness or loss of mind; nor did he display any indication of morbid suspicion, vanity or conceit, or claim that he was "inspired" or had "a mission to perform," or that he was subject to any uncontrollable impulse. In fact, as regards the existence of evidences of mental disease or defect, the result of the examinations was entirely negative. On the contrary, everything in his history, as shown by his conduct and declaration, points to the existence in him of the social disease, Anarchy, of which he was a victim.

My last examination of Czolgosz was made jointly with Dr. Gerin, Physician of Auburn Prison, the evening before his execution. This examination revealed nothing either in his mental or physical condition which tended to alter the opinion I gave to his counsel at the time of his trial, namely, that he was sane—an opinion which was concurred in by all of the official experts on either side, namely, Drs. Fowler, Crego and Putnam, for the people, and Dr. Hurd and myself for the defence, also by Dr. Gerin, the only other physician who examined him. Furthermore, the prisoner's manner, appearance and declarations in the execution room, together with the postmortem findings, corroborated most conclusively the original opinion as to sanity, while his dying declarations that he killed the President because he regarded him as "an enemy of the good people—the good working people," and that he was not sorry for his crime, all tend to stamp him as an Anarchist. In fact, his bearing and conduct from the time of the commission of the crime to his execution were entirely consistent with the teachings and creed of Anarchy. Moreover, neither the three careful personal examinations which I made of him—one alone, one with Dr. Hurd and one with Dr. Gerin—the measurements of his body by the Bertillon system nor the postmortem findings, disclosed the slightest evidence of mental disease, defect or degeneracy. This opinion is confirmed by the people's experts who repeatedly examined him and observed him from time to time, from the day of the assassination to the close of the trial, and by Dr. Gerin the physician of Auburn Prison, who observed him carefully during the four weeks that he was in that institution awaiting execution. Dr. Gerin has had exceptional opportunity for the study of criminals, both sane and insane, in his capacity as prison physician and, previously, as assistant physician at the State Hospital for the Criminal Insane.

If Czolgosz was a victim of mental disease the question would naturally arise as to what form of that disorder he was suffering from. If, in answer to this question, we undertake to make a diagnosis by exclusion, we find the following results: There was absolutely no evidence of insane delusion, hallucination or illusion. There was none of the morbid mental exaltation or expansiveness of ideas that would suggest mania in any form, none of the morbid mental gloom and despondency of melancholia, none of the mental weakness of dementia, none of the conjoined mental or motor symptoms that are characteristic of paresis, nor was there anything in his manner, conduct or declarations that would suggest the morbid vanity and egotism, the persecutory ideas or the transformation of personality which usually characterize paranoia or systematized delusional insanity. In fact, at no time during the period from his arrest to the time of his execution did he exhibit any of the mannerisms, boastful display, etc., or claim to have a "divine inspiration" or "a mission," or make any complaint or suggestion of personal wrongs and persecutions which are so characteristic of paranoiacs; nor did he, during his trial, or subsequently, evince any indication of satisfaction or delight at being the central figure of the occasion and the observed of all the observers which he was; nor was there any attempt on Czolgosz' part to simulate mental disease. The refusal to talk with his counsel was perfectly consistent with the views which he expressed to the District Attorney soon after his arrest, namely, that he did not believe in law and that he wanted no counsel. He did, however, converse with others, namely, the District Attorney from time to time before his trial, also with his guards at the Buffalo jail, with whom he frequently walked in the corridor fronting his cell for an hour or two at a time, conversing with them intelligently the while and making his wants as to bathing, toilet, tobacco, etc., known in a natural manner. He also conversed freely with the people's experts in their earlier examinations of him, and talked, though not so freely, with Dr. Hurd and myself, and when on arraignment for trial and formally asked to plead he promptly arose from his chair and answered in a clear voice, "Guilty." He also responded promptly when directed by the clerk of the court to "stand up and look upon the juror" as each of the jurors were sworn, and resumed his seat in each instance at the proper time. Beyond this he remained mute while in the court-room, and yet to anyone who observed him closely it was apparent that he was fully aware of and attentive to the proceedings.

A recent writer—an eminent alienist—discussing the mental state of Czolgosz says:*

"We can perceive no indications of mental disease in Czolgosz, and were the absurdity of his statements and acts to be a criterion of mental unsoundness we should have to establish a new category of insanity for the reception of the various groups of Anarchists—not to mention other terrorists. * * *

"We deem it an error to regard Czolgosz's mutism in court when called on to plead and before his counsel as an attempt to simulate insanity. This conduct is in line with his rôle expressed in the theatrical declaration, 'I am an Anarchist and have done my duty.' As it was his 'duty' to slay the President it is his duty to go to his death with his lips sealed, and with this intent, first the plea of guilty and his conduct are perfectly consistent. He shows no reluctance to converse on matters disconnected from the crime, nor even of matters connected therewith provided they do not touch its preparations and thus betray his associates.

Aside from his reticence to his counsel there was nothing in Czolgosz's manner, appearance or declarations that was indicative of insanity or of simulating. His reticence toward his counsel, as already intimated, was entirely consistent with his expressed disbelief in government and in law and his declaration that he shot the President with a clear knowledge of the nature and consequence of the act; and, while he pleaded guilty in court and also proclaimed when he went to his death his reason for committing the crime, and declared that he was not sorry therefor, in a manner which clearly

*"The Mental Status of Czolgosz and Assassins Generally," by E. C. Spitzka, M.D. The Medical Critic, Nov., 1901.

implied that he regarded the act as a justifiable one, he did not claim that it was not a crime on his part as paranoiacs usually do, nor did he in any way indicate that he regarded himself a victim of conspiracy or persecution. On the contrary, he declared—to the people's experts—that he fully understood what he did when he shot the President and was willing to take the consequences; that "I know what will happen to me—if the President dies, I will be hung." Justice White, commenting on Czolgosz's plea of "guilty" when arraigned for trial—a plea which could not be accepted under the law—said: "The prisoner's plea of guilty indicates that he himself anticipates no escape from the penalty which the law prescribes for a crime of the character alleged in the indictment." Again Czolgosz said: "I done my duty, I don't believe in voting; it is against my principles. I am an Anarchist." He further said that he had been an ardent student of the doctrine of Anarchy and had attended many "circles" where these subjects were discussed. He had attended a meeting of Anarchists about six weeks ago and also in July; had met and talked with an Anarchist in Chicago about ten days ago; that he belonged to a "circle" in Cleveland which had no name. "They called themselves Anarchists." That he went to Cleveland "on no particular business" the Friday before the assassination. He had been in Buffalo for two or three weeks prior to going to Cleveland. "I planned to kill the President three or four days ago, after I came to Buffalo"—from Cleveland. "I don't believe in the republican form of government and I don't believe we should have any rulers. I had that idea when I shot the President and that is why I was there."

In explanation of his abandonment of his religious faith and his rejection of the services of a priest, Czolgosz said the night before his execution: "I would like the American people to know that I had no use for priests. My family are all Catholics and used to go to church until the hard times of 1893. We had been taught by the priests that if we would pray, God would help us along, but it did no good; it didn't help us and we stopped going to church at that time." He also said at this interview: "McKinley was going around the country shouting prosperity when there was no prosperity for the poor man. I am not afraid to die. We all have to die sometime."

It may be said that Czolgosz' belief which he expressed as he went to his death, that the President "was an enemy of the good working people," was a delusion, and such it undoubtedly was in the broadest sense of that term; that is, it was a false belief, but it was in no sense an insane delusion or false belief due to disease of the brain. On the contrary, it was a political delusion, so to speak—a false belief founded on ignorance, faulty education and warped—not diseased—reason and judgment—the false belief which dominates the politico-social sect to which he belonged and of which he was a zealot, who in common with his kind believes that all forms of government are wrong and unnecessary—a body of malcontents whose teachings oppose all government and who advocate the use of violence to destroy the existing social and civil order of things. By his own admissions, Czolgosz was a devout Anarchist and a firm believer in the principles of "Free Society," as taught by Emma Goldman—of whom he was an ardent admirer—and others. These were the beliefs which furnished the motives for the murderous deed.

That Czolgosz was an Anarchist and actuated in his crime by the motives which spring from the teachings of that sect, are clearly shown by: (1) His declarations after his arrest, namely, that he did not believe in any form of government or law and that all rulers were tyrants who ought to be put down. (2) His admissions to the District Attorney that he was a member of Anarchistic societies or circles and had frequently attended the meetings of the same; also that he had been influenced in his views by the "lectures" of Emma Goldman; and that when apprehended Anarchistic literature was found on his person, and (3) the recognition and commendation which he has received at the hands of Anarchists at their meetings both in this country and abroad since his death, several of these societies having openly recognized him as such and lauded his action.

The Anarchists' creed teaches that when one of their number is selected to do a certain deed, he is to proceed about it quietly and in his own way, taking no one into his confidence; that, having accomplished the deed, if apprehended, he shall not admit his connection with any other members of the circle; that, if convicted and sentenced to die he shall go to his death without revealing his connection with others, resting secure in the belief that he will be ever regarded by his associates as a martyr and a hero who died in the discharge of a noble duty. The course and conduct of Czolgosz from the beginning down to his death are entirely in keeping with this creed. And, finally, the cool and courageous manner in which he met his death, and the fact that, from the day of his arrest until he died, he never uttered a word that could be used against his accomplices—if he had any—and that he died—as Anarchists who suffer the death penalty always die—without uttering a word that would tend to incriminate any of his coconspirators, tend to stamp him as an Anarchist.

In conclusion, the writer, having viewed the case in all its aspects, with due regard to the bearing and significance of every fact and circumstance relative thereto that was accessible to him, records his opinion unqualifiedly that Leon F. Czolgosz on September 6, 1901, when he assassinated President McKinley, was in all respects a sane man—both legally and medically—and fully responsible for his act.

THE POSTMORTEM EXAMINATION OF LEON F. CZOLGOSZ,

BY EDWARD ANTHONY SPITZKA, M.D.
OF NEW YORK.

THE postmortem examination was performed by the writer under the supervision of Dr. Carlos F. Macdonald of New York, who was requested by the State Superintendent of Prisons to take medical charge of the execution in conjunction with Dr. John Gerin, Prison Physician. The examination began at 7:50 a. m. and was completed at 12:30 p. m. Among the witnesses were the physicians in attendance at the execution.

As the body lay upon the table in the dorsal position, the right leg, to which the electrode had been attached, was slightly flexed and a trifle abducted. This attitude of the body has been found to be uniform in the postmortem examinations made on many other electrocuted criminals by Dr. Ira Van Gieson.[1] In all of these cases the electrode had been applied to the knee flexure.

Corresponding to the attachment of the leg-electrode there was a superficial blistering, with some desquamation of the epidermis and some edema. At the site of application of the head-electrode there were only a few signs of vesication limited to the occiput.

Postmortem discolorations existed in all the extremities, but not in the trunk, head or neck, where the skin was fairly white. There was postmortem lividity

of the toe and finger nails. The pressure of the straps had not produced any discolorations. There was a discharge from the urethra of small amount, probably seminal fluid.

The assassin's physiognomy may be described as youthful and with rather a pleasant expression. The nose is pointed, slightly retroussé and fairly straight, deviating a little at the point of the injury inflicted at the time of the assassination. The eyes are blue, the pupils equal and moderately dilated. The hair is a light brown and slightly curly. The face is oval and symmetrical. The ears are well formed and absolutely symmetrical. The mouth is well-shaped, the lips full; measuring the true orifice, the width is 4 cm., between the outer angles 5 cm. The teeth are of normal shape, but are in poor condition. The external genitals are normal and are unclean with accretions of smegma under the prepuce. There are two flat cicatrices, one 4 mm. in diameter, the other half that size, on the mu-

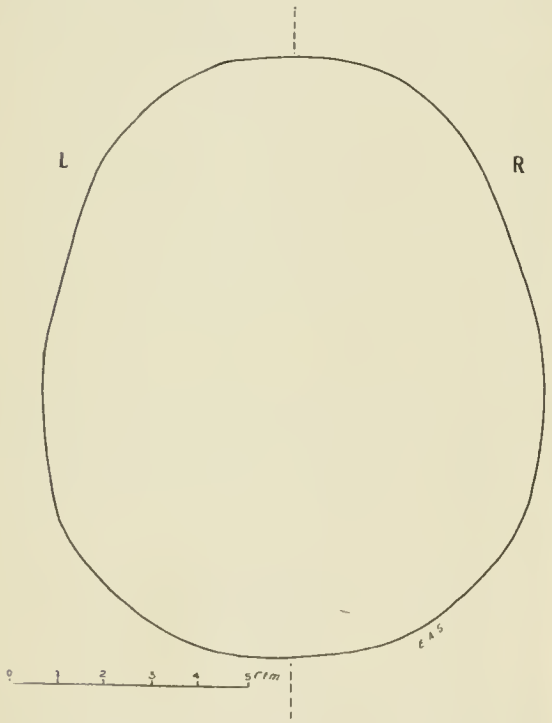

Fig. 5. Horizontal outline of the head (by lead-strap).

cous surface of the prepuce about 5 mm. from the corona glandis. The tissues under and about these cicatrices are not indurated, and the scars are doubtlessly the remains of chancroids acquired at some time previous. As stated before there has been a discharge of seminal (?) fluid, some of which is still within the urethral passage.

At 8:10 a. m. the surface temperature of the body taken on the side of the chest with a "Seguin" surface-thermometer was 97° F.; per oram 97.4° F. The body cooled very slowly throughout the examination, and the greatest amount of heat appeared to be retained in the brain. Rigor mortis set in about three hours after death.

The following measurements of the head were recorded:

	Centimeters.
Maximum circumference (21½ inches)	54.6
Maximum antero-posterior diameter (from glabella to maximum posterior point)	18.7
Maximum lateral diameter	15.5
(Cephalic Index—82.88)	
Bi-auricular diameter (between roots of zygomæ)	15.0
Length of face (from the inter-superciliary point to the superior alveolar point between the middle incisors)	9.2
Bi-zygomatic diameter	14.5
Minimum frontal diameter	12.0
Diameter from glabella to inion	19.1
From vertex to hair-line	12.0
" hair-line to root of nose	6.0
" root of nose to its base	5.3
" base of nose to chin	7.0
Vertex to chin (diameter)	25.4
Breadth between pupils of eyes	6.8
Breadth of nose at its base	3.4
Width of mouth (internally)	4.0
" " " (externally)	5.0
Length of ears (both sides equal)	6.1

Fig. 9. Cast of Head.

After these measurements had been taken, about fifty minutes were devoted to the making of plaster-moulds of the entire head.

Fig. 10. Cast of Head.

A cast has since been made from these moulds and two photographic views, in full face and in profile, are

presented here. Unfortunately the left ear in the mould had been broken during the transportation from Auburn, and the fragments were pieced together with difficulty. The defects have been rectified in the photograph. On the subject the ears were perfectly symmetrical, both as to form and size.

The moulds were made upon the head while the body lay prostrate upon the table. This attitude gave rise to the prominence of the "Adam's apple," and to the slight parting of the lips. The hair was rubbed well with vaseline and flattened as much as possible to prevent the plaster from adhering.

On the skull the following measurements were taken: Max. antero-posterior diam., 18.0 cm. Max. lateral diam., 14.7 cm. Cranial Index, 81.66.

The head of Czolgosz, as is typical of the Poles, falls into the sub-brachycephalic class; according to Weisbach the cephalic index of forty Poles was 82.9; 82.88 in Czolgosz.

At the time of Czolgosz's reception at the Auburn State Prison (Sept. 27th) measurements of his body were taken according to the Bertillon system by J. N. Ross. I reproduce here the more important figures.

Stature (5 ft., 7½ in.)	171.4	centimeters
Stretch	181.0	"
Trunk	91.1	"
Head, length	18.6	"
Head, width	15.6	"
Cheek, width	14.5	"
R. ear, length	6.3	"
L. foot	26.0	"
L. mid. f	11.7	"
L. lit. f	9.0	"
L. cubit	47.2	"

"These measurements are all medium and each is consistent with the others. The stretch and cubit measurements might be said to be slightly out of proportion, indicating that his forearms were slightly longer than those of a majority of men of his stature, but this excess of length is not sufficient to call for comment." His weight on that day was 141 pounds.

The marks and scars are here reproduced in the order in which they appear on the Prison's Department's identification card.

"I. Sev. sm. cics. post. first fgr. left hand near 2d jt.

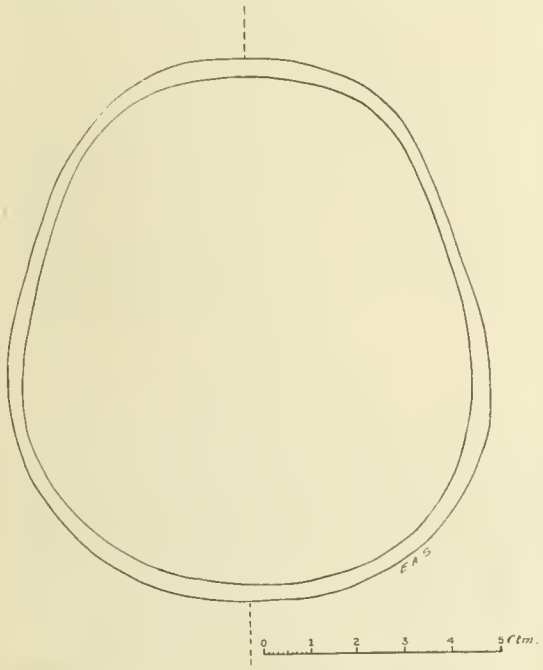

Fig. 7. Outline drawing of the skull in the plane of the saw-cut described in the text, showing thickness of bones.

Cic. of 1 ob. ex. on 1st phal. 3rd fgr. left hand post.

"II. Cic. of 3 rec. ver. crossing 3rd joint, mid. fgr. right post. Cic. of 1 circ. at 5 over right wrist post.

"III. Mole at 5 under left cheek bone and 9 to left med. line.

"IV. Sev. moles on front and back of neck."

Next the cranium was opened and the brain removed. The scalp was divided by means of a median incision passing from the glabella to the inion. On incising the scalp a quantity of dark fluid blood escaped. The scalp was of moderate thickness, firm and well adherent to the skull. The two flaps of the scalp were dissected from the skull and drawn down on either side of the head. The sutures were well-marked and no synostosis was observed. Supernumerary or abnormally-developed bones were not discernible.

The calva was removed by a saw-cut passing around the cranium about 1.5 cm. above the glabella and about 2.5 cm. above the inion. In Fig. 7 is shown the outline of the thickness of skull along this section. In the removal of the calva, the saw was supplemented by the chisel and hammer. The calva came off readily, the dura being non-adherent. There was no marked escape of cerebrospinal fluid. Along the saw-cut the skull was slightly flatter in the fronto-parietal region on the right side, while it was more curved or rounded on the left. The right parieto-occipital region was a trifle fuller than on the left side. The markings on the internal surface of the calva, such as the groove for the superior longitudinal sinus and for the meningeal vessels, the digitations, and the impressions for the Pacchionian bodies, etc., were all distinctly marked. The dura was grayish-white, moderately translucent and somewhat dry; there existed a marked engorgement of dark fluid blood. The dura was neither tense nor loosened. The Pacchionian bodies were of the usual number and distribution. The inner surface of the dura was fairly moist. There were no evidences of hemorrhagic pigmentation or of pachymeningitis.

The brain, invested by the pia-arachnoid, was exposed by crucial incisions into the dura, which was perfectly non-adherent to the membranes within. The brain was carefully removed and during most of the subsequent examination was kept in a salt-solution (about 1 part in 20 of water). At the time of removal, still invested by the pia-arachnoid, and with the ventricles unopened, the entire brain weighed fifty-one and a half ounces avoirdupois (1,460 grammes).

The base of the skull was normal in every respect. The pia-arachnoid was of normal thinness, and devoid of opacities or other signs of disease—past or present. The only unusual appearance was an injection of bright red blood in the finer vessels of the pia, due, if we may judge from previous reports of autopsies on electrocuted criminals, to the high electro-motive force exerted by the fatal current in this part of the body. The pia was stripped off with ease, being nowhere adherent to the cortex.

Examination of the Brain.

(See Figures 1, 2, 3 and 4.)

In general the brain presents no marked peculiarities of shape or size. It is firm to the touch and no portion of it despite most careful examination feels softened or indurated.

The brain was divided into its natural segments according to the following method: The ectal border of the optic tract and the tænia thalami ("ripa" of Wilder) are used as guides for a single simple incision: those of either side converge cephalad to meet in front of the chiasm; the usual cut through the callosum and the terma (lamina terminalis) completes a tri-section

which leaves the cerebrum (prosencephal) and brain-axis separated as nearly the ideal as can be. This mode of dissection is a modification of Meynert's plan and is a method by which each hemicerebrum, with the insula intact, is separated from the brain-stem; whereas Meynert, by trenching round the circuminsular boun-

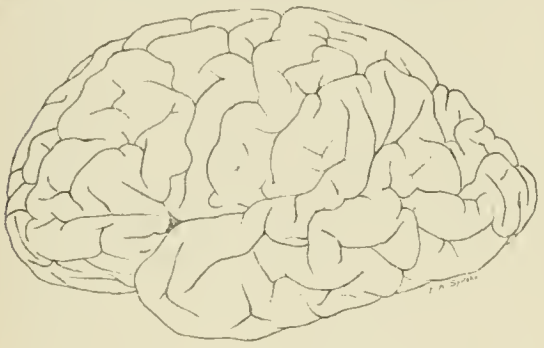

Fig. 1. Lateral view of left hemicerebrum.

daries separates the convex cortical mass from the brain-stem plus the insula, leaving a cortical component attached to the axial structures. The Meynert method consequently does not give the weight of the cerebral hemispheres strictly speaking. As far as the caudatum and lenticularis are concerned this would not be a serious objection; but as it also excludes the important cortical area of the insula—no inconsiderable portion of the cerebral projecting and associating tracts—it falls short of the method adopted here.

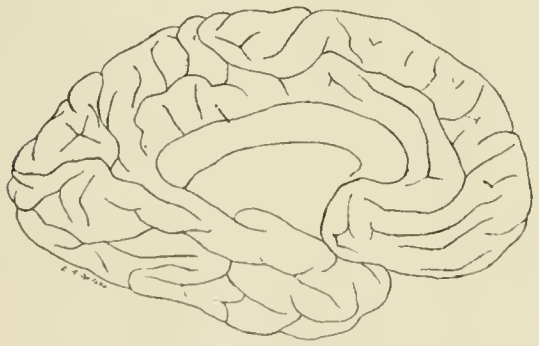

Fig. 2. Mesial view of the left hemicerebrum.

After the brain had been thus dissected and drained, and the pia-arachnoid stripped off the cerebrum, the segments were found to have the following weights:

Left hemicerebrum (without pia)	585 grams.
Right hemicerebrum (without pia)	600 "
Cerebellum (with pia-arachnoid)	166 "
Isthmus (" " ")	64 "
	1,415 grams.

Examination of the paracœles (lateral ventricles) in both hemicerebra revealed the veins of the striatum (the striatal veins) injected with deep violet-colored blood. The cornua were of normal extent and conformation throughout. The endyma was smooth, the choroid plexus was normal and contained little blood; the velum interpositum ("velum" of Wilder) was normal.

Left Hemicerebrum.

The sylvian fissure is 6½ cm. in length; the episylvian, 2¼ cm.; the hyposylvian is absent. The presylvian ramus is 2 cm. in length, the subsylvian 1 cm. in length.

The central fissure is fairly flexuous and ramified; it is uninterrupted throughout its length and is separated from the sylvian by a narrow isthmus. At its ventral end the fissure terminates in a hook-like manner. The dorsal end appears on the mesial surface. The super-central fissure is confluent with the superfrontal, but is separated from the precentral. The superfrontal is distinct in the mid and postfrontal regions, but is absent in the prefrontal region. The three-tier type is preserved in the prefrontal region by the existence of a medifrontal fissural segment about 4 cm. in length, and which is confluent with the orbitofrontal. This is not very clearly seen in the figure, owing to the effect of the convexity. The reader is referred to the schematic outline in Fig. 8.

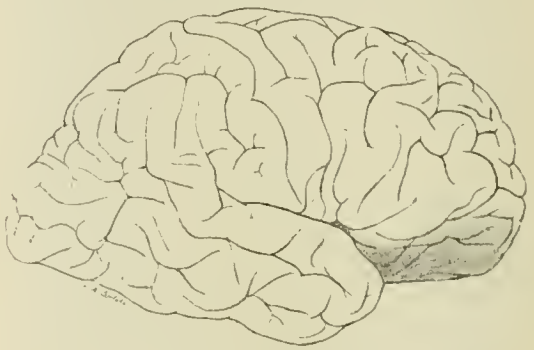

Fig. 3. Lateral view of the right hemicerebrum.

The precentral fissure is confluent with a small diagonal fissure, and this in turn with the presylvian. It sends an "anterior precentral ramus" across the medifrontal gyrus to anastomose with the superfrontal fissure.

The subfrontal fissure is independent and sends off several rami into the neighboring gyres. There is a very long radiate fissure.

The precentral gyrus is not very broad as compared with the postcentral. The three frontal gyres are fairly massive and marked by fissures which run generally transverse.

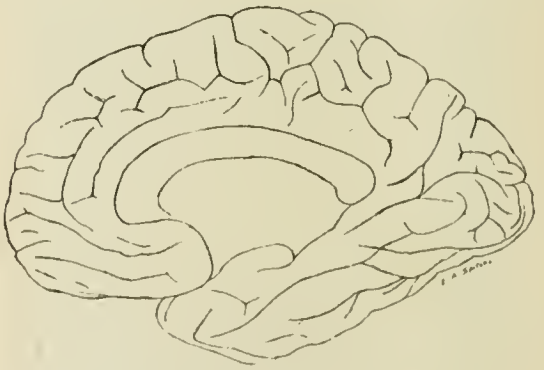

Fig. 4. Mesial view of the right hemicerebrum.

The postcentral fissural complex consists of three segments. The dorsal one is very flexuous and ramified, but independent. The middle segment is confluent with the parietal, and is only superficially joined to the third segment, the subcentral. The transpostcentral is hardly visible on the external surface, but on examination is found to communicate with the circuminsular fissure.

The parietal fissure is notable for the angle which it makes with the intercerebral cleft, converging rapidly toward it as it passes caudad. It communicates with the paroccipital fissure over a vadum about 6 mm. in

depth. Otherwise the paroccipital does not communicate with any other fissure. There are two transparietal fissures; the cephalic one communicating with the precuneal fissure on the mesial surface.

The temporal lobe is of good size and shape. The supertemporal fissure is uninterrupted throughout its length and communicates with the intermedial over a slight vadum. The meditemporal fissure is represented by four segments. Numerous fissures, the "lateral occipital" among them, mark the region of the occipito-temporal transition. The postcalcarine fissure appears on the lateral surface for about 2 cm.

The postcentral gyrus is of good development and is fairly wide. The marginal, angular and post-parietal gyral portions of the sub-parietal lobule exhibit a moderate development. The parietal gyrus is of cuneiform shape, broad cephalad, narrow caudad. The supertemporal gyrus is very sinuous. The remaining temporal gyres are fairly wide and well developed.

The subcalcarine gyrus is wide in its caudal portion. The cuneus is small, rather unusually so. The precuneus is of good size and conformation. The paracentral gyrus is of typical appearance and of the usual size. It is traversed by a well-marked inflected fissure and by a tri-radiate intraparacentral fissure. The mesial surface of the superfrontal gyrus is of moderate size and is marked by five or six transverse fissures, three of which are rami of the supercallosal. The callosal gyrus in its cephalic half is doubled by a long fissure running parallel with the supercallosal; in its caudal part it is traversed by several transverse fissures.

There are two well-marked rostral fissures (rostral and subrostral) and a short transrostral. The supercallosal fissure is long and anastomoses with the paracentral over a vadum of 5 mm. The paracentral fissure in turn anastomoses with the precuneal over a vadum of 3 mm. The occipital and calcarine fissures

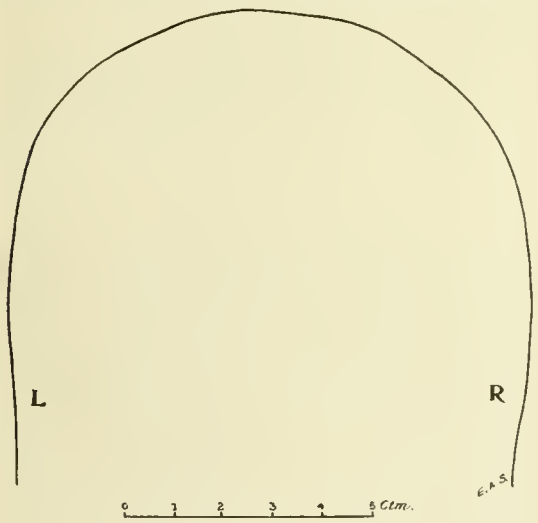

Fig. 6. Outline of the vertex from ear to ear (taken just in front of the roots of the zygomæ).

anastomose freely. A "posterior cuneolingual" subgyrus tends to partially separate the calcarine from the postcalcarine. The collateral fissure is fairly well ramified. The insula exhibits a good development. There are six gyres proper, with seven peri-insular digitations. The insula was completely covered by the opercula.

Right Hemicerebrum.

The sylvian fissure is 5½ cm. in length; the episylvian 3 cm.; the hyposylvian 1½ cm.; the presylvian 2½ cm.; the subsylvian is very short.

The central fissure is uninterrupted throughout its length, and is separated from the sylvian by a very narrow isthmus. Its dorsal end crosses the dorsi-mesal margin. The supercentral fissure anastomoses with a long superfrontal fissure, but not with the precentral.

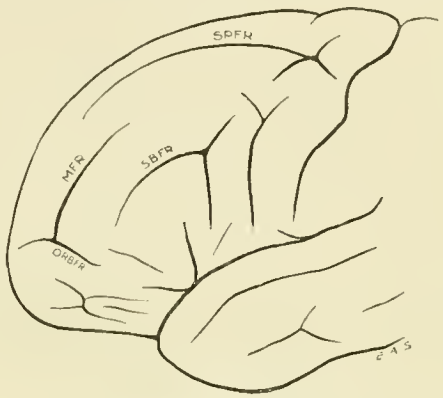

Fig. 8. Diagrammatic sketch, showing disposition of the fissures and gyral tiers in the left frontal lobe.

The precentral fissure joins both the transprecentral and the diagonal, and by means of these the sylvian cleft.* This fissure gives off an "anterior precentral ramus" from which springs the caudal segment of the subfrontal fissure.

The superfrontal fissure is long and uninterrupted, extending nearly to the frontal pole. There is no true medifrontal fissure present. The subfrontal fissure is in two segments, the caudal segment being confluent with the precentral by means of its "anterior ramus"; the cephalic segment anastomoses with the orbito-frontal. Besides an independent radiate fissure there are other unnamed fissures in the subfrontal region. There are two long sagittally directed orbital fissures; the lateral one of these communicates with the orbito-frontal.

As in the left half, the precentral gyrus is rather narrow as compared with the broader postcentral gyrus. The three frontal gyres are all of good width and are chiefly marked by transverse fissures. The postcentral fissural complex is made up of two segments superficially confluent with each other. The dorsal segment is short. The ventral segment is longer, and is confluent with the parietal fissure. The parietal fissure is uninterrupted, deep, and separated from the paroccipital fissure by an isthmus. There is a well-marked post-paroccipital fissure and one distinct transparietal.

The supertemporal fissure is long, uninterrupted, and not deeply confluent with any other fissure. There are four meditemporal fissural segments. The intermedial joins the parietal. There is a fairly well-marked "lateral occipital" fissure.

The postcentral gyrus is fairly wide and flexuous. The parietal gyrus is wide, and exhibits the same cuneiform shape as described for the left side. Of the subparietal gyres the angular gyrus is of fair size, while the remainder of this territory shows only a moderate development. The paroccipital gyrus is very small, but quite flush with the general surface of the brain.

The gyres of the temporal lobe show very good development, and in the occipito-temporal transition the markings are quite complex.

On the mesial surface the supercallosal fissure consists of two segments, and there is a similar duplica-

*Found by Sernoff in 44 per cent. of Polish brains.

tion of the callosal gyrus (in its cephalic portion) as has been described in the left half. A notable peculiarity consists in the confluence of the inflected fissure with the paracentral stem, while the cephalic paracentral limb is separated from its stem, but is joined to the caudal end of the supercallosal. There is a tri-radiate intraparacentral. The precuneal fissure would be independent but for a superficial junction with the paracentral.

The occipital fissure is deeply confluent with the calcarine. The postcalcarine is tri-radiate and separated from the calcarine by a "posterior cuneo-lingual" isthmus.

The superfrontal gyrus is fairly well-marked by many transverse fissures, and by two long and distinct rostral (rostral and subrostral) fissures. The precuneus is large, a little larger than its fellow on the left side. The cuneus is as small as on the left half. The subcalcarine gyrus is of considerable width in its caudal portion.

The insula presents an ordinary degree of development, and, as on the left side, possesses six gyres, with seven peri-insular digitations.

Section of the Brain.

In cutting the brain, the resistance to the knife suggested neither increased nor diminished consistence. The cut surface was moderately moist, the gray as well as the white matter was of normal color, the cortex was of the usual thickness, and there existed neither anemia nor hyperemia. No hemorrhages, sclerotic patches, neoplasms or other lesions were discoverable.

The basal ganglia, crura, cerebellum, pons and oblongata were all perfectly normal, there being even an absence—so far as naked-eye examination could determine—of the small hemorrhages in the floor of the fourth ventricle, which have been usually found in electrocuted criminals.[2]

The spinal cord was not examined.

Examination of the Thorax and Abdomen.

An incision was made from the top of the sternum to the pubic symphysis, a quantity of dark fluid blood escaping. The diaphragm was found attached to the sixth rib on both sides of the sternum. About three to four fluid-drams of clear fluid were found in the pericardial sac. The heart was firm and appeared to be in a tetanized condition; it had ceased in systole. This contracted condition is doubtlessly due to the high electro-motive force of the current. The ventricles were empty; the heart-walls, endocardium and valves were normal. The weight of the heart was eleven ounces. Both lungs were somewhat emphysematous, floating a trifle more than half out of water. They were moderately pigmented and of firm consistency. None of the bronchial lymph-nodes were enlarged. Except for a few bands of pleuritic adhesions of the right lower lobe, there were no lesions in either lung. The left lung weighed 7¾ ounces, the right lung 8½ ounces.

The larynx, aorta, and the venæ cavæ were normal. The stomach was in the normal position, well contracted, and well under the diaphragm, with only a small residue of food near the pyloric end—the prisoner having had nothing to eat since the evening before the execution.*

The examination of the intestines was a brief one, as nothing unusual was seen. The appendix was 8 cm. in length, free, and lay dorsad and mesad of the cecum.

The pancreas was normal. The liver was dark, hyperemic, but healthy; there were no patches, infarctions or other lesions. The gall-bladder contained about one ounce of clear bile. The liver weighed 61 ounces. The spleen was also hyperemic, mottled with light pink streaks, but of normal structure. Weight, 7⅜ oz. The kidneys were moderately supplied with fat, markedly hyperemic, but all the structures could be made out clearly to be of normal condition. The left kidney was somewhat larger than usual. The capsule was non-adherent in both instances. The left kidney weighed 7¼ ounces; the right weighed 5¼ ounces. The bladder was somewhat contracted, firm, and contained about three ounces of clear urine. The bladder-wall and mucous membrane were normal in all respects. The prostate was rather firm but not enlarged. The urethra, testes, etc., were normal.

It had been the writer's purpose to make a fuller anatomic and anthropometric investigation upon the assassin, but the peculiar circumstances which arose in the matter of the disposal of the body, and the anxiety of the prison's warden to put the body under earth, forced me to conclude my researches after having obtained the most essential data for purposes of record and future study.

The results of the necropsy can be summed up by saying that Czolgosz was in excellent health at the time of his death. There was, of course, a marked condition of hyperemia of all the viscera, and the blood was considerably altered in that it remained fluid, doubtless due to the destruction of the fibrin-ferment, or of the fibrinogen, or both. These phenomena, as also the tetanized condition of the heart, have been observed by E. C. Spitzka, Carlos F. MacDonald, Van Gieson and E. W. Holmes[3] on criminals executed by lethal currents of electricity.

The external appearances of the body of the assassin, especially the facial expression, have been admirably described by Murat Halstead, who happened to be present, in a short but vivid account of the autopsy, entitled "Czolgosz after Death."

"The spectacle was interesting; the assassin had been dead but a few minutes, and was lying at full length on his back on the table provided for the surgeons, his body white as marble, his face not at all distorted. One might say he was as if sleeping, but that would not describe the expression of the features, though that was almost of perfect repose. The head rested on the back part of the table so as to elevate the chin and allow the forehead to slope downward. There was no sign of a great agony; the hair had not been removed for the electrode, but was full of water from the sponge, and in disorder. If there was any mark on the head made by the deadly shock it was not visible. There was a red blotch on the right leg below the knee. . . . The strong throat, with a distinct Adam's apple, was prominent. The lips were slightly parted with more than the curl they had in life. . . . There was nothing in the appearance of the body of the emaciation from imprisonment so often referred to. Any physician would say the corpse was that of a well-nourished young man. The figure was of good proportions, his limbs especially so. The arms were not muscular. Evidently he was not a man who had cultivated his muscles by exercise or expanded or hardened them by labor. The arms were of a young man of leisure—smooth, round and fair. His hands were not in any way notable. He had high insteps, neat ankles and long toes. The muscles of the legs were better developed than those of his arms, indicating he was swift of foot. He was not noticeably spare in body; his chest was round and symmetrical—not lean—but the ribs quite distinct. With his head thrown back, it seemed to have been well poised in life, more so than

*The "hearty breakfast" so graphically described in most newspapers was but a figment of the imagination.

is shown in his pictures—all of which that are familiar having been taken in prison. Nothing in his face or his person gave indication of heavy feeding or drinking, or of evil indulgence. There were none of the inevitable traces of confirmed dissipation."

The question as to whether his body invested a healthy mind opens up a wide topic for discussion which it is not entirely in the writer's province to pursue. So far as our knowledge of the correlation of brain-structure and brain-function extends, nothing has been found in the brain of this assassin that would condone his crime for the reason of mental disease due to intrinsic cerebral defect or distortion. The brain-weight, though by itself unimportant, when considered in its other relations points to a good condition of the organ. Divested of its membranes, dissected, drained and after being immersed in a salt solution for several hours, its weight was 1415 grams, a trifle less than fifty ounces. This weight is even a little over the average. Giltschenko[4] records observations upon the weight of 102 Polish brains, the average being, for males, 1397.8 grams, with an average stature of 168.12 cm. The development of the fissures and gyres, from a morphological view-point, has taken place in the direction usual in ordinary average brains. There are no marked evidences of arrested development or of pithecoidal anomalies.* Generally speaking, this brain does not exhibit that especial kind of asymmetry of gyral structure in the cerebral halves that is so characteristic of the brains of highly endowed individuals. There are many features in the one hemisphere that are reproduced almost exactly alike in the other. The few peculiarities encountered in the course of the fissures, such as the confluence of the left precentral, by its anterior ramus, with the superfrontal—across the medifrontal gyrus; or the separation of the right cephalic paracentral limb from its stem, while at the same time the inflected joins the paracentral (a feature found by the writer in 9 out of 160 hemicerebra in which the inflected was present[5] and also the smallness of the cuneus—are insignificant so far as individual brains are concerned, and will be discussed at length in a later contribution.[6]

The skull is not symmetrical, but the asymmetry is slight and fully within the normal range of variation. An absolutely symmetrical skull probably does not exist.

It is a probable fact that certain oft-mentioned aberrations from the normal standard of brain-structure are commonly encountered in some criminal or degraded classes of society, and those who have attempted to found a school of degeneracy have endeavored to explain crime and social wickedness as due to "accidental persistence of lower types of human organization." But these structural anomalies, so far as they have been described in the brains of criminals, are too few and too insufficiently corroborated to warrant us in drawing conclusions from them. Various perversions or anomalies of mind may exist in this class without presenting a uniform criminal type, either from the sociological or the anatomical aspect. Of course, it is far more difficult—and it is impossible in some cases—to establish sanity upon the results of an examination of the brain than it is to prove insanity. It is well known that some forms of psychosis have absolutely no ascertainable anatomical basis; and the assumption has been made that these psychoses depend rather upon circulatory and chemical disturbances. So far as this question touches upon the brain and body of Czolgosz, there have been found absolutely none of those conditions of any of the viscera that could have been at the bottom of any mental derangement. Taking all in all, the verdict must be "socially diseased and perverted, but not mentally diseased." The most horrible violations of human law cannot always be condoned by the plea of insanity. "The wild beast slumbers in us all. It is not always necessary to invoke insanity to explain its awakening."

In conclusion, the writer wishes to express to Dr. Carlos F. MacDonald his appreciation of and thanks for the exceptional opportunity afforded in the performance of this autopsy.

66 East 73d Street.

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*The reader who may have happened to see an article entitled "Degeneracy and Political Assassination," by Eugene S. Talbot, M.D., D.D.S., in "Medicine," December, 1901, must be surprised to find that the citation of "It is admitted by E. A. Spitzka that the brain presented anomalies" is directly contradicted here. This is one of those numerous instances showing the desirability of medical writers awaiting the responsible publications of scientific results or conclusions, instead of giving newspaper canards currency by incorporating them in their papers, and at the same time distorting facts to fit the theories they hold. The paper of Dr. Talbot presents such an endless vista of degeneracy as to give ground for apprehension that many other facts on which it rests were obtained in a similarly uncritical way and, hence, have misled that writer as unfortunately as in the Czolgosz matter.

The incorrect and misrepresenting citation were sufficiently trying without additional infliction in the way of an invidious implication, be it ever so unintentional on Dr. Talbot's part; but when the entire tone of the article in reference to the Czolgosz trial is critical anent its alleged "cooked and dried" character, and he intimates suppression of postmortem evidences, it sounds as if "It is admitted by E. A. Spitzka that the brain presented anomalies" indicated an unwilling admission and, hence, a partisan spirit. However, as the statement is altogether false, this feature needs no more consideration than "No microscopic examination worthy of the name was made."

We deserve at least this piece of justice that we did not pretend to have done anything we did not do. Had we made one, it would have been our aim to have been more accurate in citation of collateral writers than Dr. Talbot has been or seems to have aimed at being. So how it can have been worthy or unworthy of any name, I cannot see.

Dr. Talbot, not familiar with the law of New York State, is in error when he says: "The course of the court in refusing to accept his plea of guilty and forcing him to accept counsel is justifiable only on the ground of assumed insanity." In this State, a plea of guilty is inadmissable by law in capital offences.

ORIGINAL ARTICLES.

A REPORT OF FORTY-FIVE UNPUBLISHED CASES OF HEMORRHAGE TREATED BY THE INTERNAL ADMINISTRATION OF THE SUPRARENAL CAPSULE.

BY SAMUEL FLOERSHEIM, M.D.,

OF NEW YORK.

THE internal administration of the suprarenal substance has been employed with distinct success by a few observers in hemorrhages resulting from various causes. The author[1] reported sixteen cases of hemoptysis from various causes successfully treated by the internal administration of the suprarenal powder. Wm. B. Kenworth[2] reported fourteen additional cases. F. A. Mandeville[3] treated a case of epistaxis by the internal administration of the suprarenal sub-

stance. James B. Moore[4] also treated a case of hemoptysis with the suprarenal powder. Cases of uterine hemorrhage successfully treated by the administration of the suprarenal extract have been published by George Tucker Harrison,[5] F. Churchill,[6] James B. Moore and by the author.[7]

The author[8] reported two cases of hematuria successfully treated by the internal administration of the suprarenal powder. Francis J. Quinlan[9] reported a case of hemorrhage from the stomach successfully treated by the same means. Stephen F. Sturdevant[10] reported excellent results in a case of accidental abortion of three and a half months which resisted most other remedies. O. F. F. Grünbaum[11] reported that hematemesis had been controlled by small doses frequently repeated. L. Emmett Holt reported to the American Pediatric Society at Buffalo, 1901, a case of gastro-intestinal hemorrhage in a newly-born infant successfully treated by the suprarenal extract. Twelve grains were administered by mouth in twenty-four hours. Victor C. Vaughn reported at the St. Paul meeting of the American Medical Association, 1901, a case of intestinal hemorrhage in a woman successfully treated by the internal administration of the extract.

I know of no other remedy whose internal administration has given me such prompt results. In my hands it has proved a safe remedy, even when the hemorrhage was complicated by diseases of the heart, lung, kidney, etc.

The suprarenal powder, five grains, when placed on the tongue, thoroughly rinsed with the saliva and swallowed without water usually produces an effect within ten minutes. Nausea and vomiting have been observed in a few cases when the suprarenal powder was administered.

Twenty-one Cases of Hemoptysis.

Case I.—Mrs. H., aged thirty-six years, had a mitral regurgitant murmur and was very anemic. She was attacked with hemoptysis which nitroglycerin failed to benefit and digitalis and ergot increased. The suprarenal substance was administered and a prompt and marked decrease in the hemorrhage was noted. The pulse became stronger and softer. The dose was repeated every six hours. No return of the hemorrhage was observed six weeks later.

Case II.—Mrs. A. R., aged fifty-one years, had mitral regurgitation and aortic stenosis. She suffered from repeated attacks of dizziness and dyspnea. During an attack of hemoptysis the remedies administered in Case I. were followed by no relief. The suprarenal powder was administered and the hemorrhage promptly ceased, the pulse was strengthened and the dyspnea relieved. The dose was repeated every four hours. No return of the hemorrhage was observed fifteen days later.

Case III.—Mr. E. D., aged thirty-one years, single, had a loud mitral regurgitant murmur. An attack of hemoptysis, due to overexertion, was not benefited by the use of the ordinary remedies. The suprarenal extract was administered and a marked lessening of the hemorrhage occurred within ten minutes. The hemorrhage was soon completely checked. No return of the hemorrhage was observed three weeks later.

Case IV.—Mr. J. W., aged twenty-one years, single, had mitral regurgitation and pulmonary tuberculosis. He was very anemic and he had had many attacks of syncope. Frequent attacks of hemoptysis were only slightly benefited by the ordinary remedies. There was always some blood in his sputa. The administration of the suprarenal powder during a severe exacerbation of the hemoptysis markedly decreased within ten minutes and completely checked the hemorrhage in two hours. The dose was repeated every two to four hours. No return of the hemorrhage was noted three months later.

Case V.—Mr. D. C., aged twenty-five years, married, had mitral regurgitation and pulmonary tuberculosis. His case was similar to Case IV. The same beneficial effects were also observed. No return of the hemorrhage was observed three weeks later.

Case VI.—Mr. C. G., aged thirty-seven years, married, had a very loud mitral regurgitant murmur. He also had pulmonary tuberculosis. The ordinary remedies had but little effect on the hemoptysis. When the suprarenal powder was administered, a prompt, complete and permanent checking of the hemorrhage resulted. No return of the hemorrhage was observed two months later.

Case VII.—Mr. J. C., aged thirty-nine years, had pulmonary and laryngeal tuberculosis. The suprarenal powder was administered during an attack of hemoptysis and a prompt checking of the hemorrhage resulted. The pulse became strong and regular. The doses were administered at five-hour intervals and no return of the hemorrhage was observed two months later.

Case VIII.—Mr. J. L., aged twenty-nine years, married, had pulmonary tuberculosis. He had a slight attack of hemoptysis which was promptly and permanently controlled by three doses of the suprarenal extract at four-hour intervals.

Case IX.—Mr. D. L., aged thirty-six years, single, had pulmonary tuberculosis. He was weak and his pulse was bad. A mild attack of hemoptysis, which ergot and digitalis increased, was promptly checked by the suprarenal powder. The pulse became fuller and regular and the cough was lessened.

Case X.—Mr. J. R., aged twenty-nine years, married, had pulmonary tuberculosis. Several attacks of hemorrhage which were with difficulty controlled by the ordinary remedies, were promptly checked by the suprarenal substance.

Case XI.—Mr. K., aged thirty-four years, had frequent attacks of hemoptysis. No cause was discoverable. Ergot, which usually benefited, failed to decrease the hemorrhage. Suprarenal powder was administered resulting in a prompt decrease in the hemorrhage and in two days it was completely checked.

Case XII.—Mrs. H., aged forty-one years, had

pulmonary tuberculosis. An attack of hemoptysis was promptly checked by the suprarenal extract. Slight recurrences were also checked by the suprarenal powder.

Case XIII.—Mrs. M. H., aged twenty-nine years, had pulmonary tuberculosis and a severe attack of bronchitis. Six weeks of constant coughing eventually resulted in producing a severe attack of hemoptysis. The usual remedies given for a day failed to diminish the hemorrhage. The administration of the suprarenal powder was followed by a rapid decrease in the hemorrhage and in four hours the hemorrhage was completely checked. The cough was also markedly lessened. Three recurrences of the hemorrhage were promptly checked by the suprarenal substance. The patient made a fair recovery.

Case XIV.—Mr. J. G., aged forty-one years, married, had pulmonary tuberculosis. An attack of hemoptysis which resisted treatment for sixteen days was completely checked in six hours after beginning suprarenal treatment. No recurrences were noted.

Case XV.—Mr. G. C., aged twenty-nine years, married, had pulmonary tuberculosis. Overexertion caused an attack of hemoptysis which was promptly checked by the suprarenal powder. A slight recurrence was also promptly checked by the drug. A rapid recovery ensued.

Case XVI.—Mrs. M. M., aged twenty-four years, had pulmonary tuberculosis and mitral regurgitation. While in bed she was attacked with hemoptysis. The rapid administration of the suprarenal powder was followed by a prompt decrease in the hemorrhage, which persisted under suprarenal treatment for two days. Recovery was fairly rapid.

Case XVII.—Mrs. T. A., aged twenty-seven years, had pulmonary tuberculosis. Climbing brought on an attack of hemoptysis. The hemorrhage rapidly subsided under suprarenal treatment. Six doses were administered and no recurrence of the hemorrhage was observed for three weeks. A rapid recovery ensued.

Case XVIII.—Mr. J. R., aged thirty-one years, married, had pulmonary tuberculosis. Hemoptysis due to exertion was promptly controlled by the internal administration of the suprarenal substance. No recurrences were observed and a rapid recovery followed.

Case XIX.—Mr. J. F., aged fifty-one years, married, had pulmonary tuberculosis and acute cardiac dilatation. An attack of hemoptysis was controlled in less than ten minutes after the first dose of the suprarenal substance. A stimulating effect on the heart was observed. Recovery was rapid.

Case XX.—Mr. C. D., aged forty-five years, married, had an attack of hemoptysis due to pulmonary tuberculosis. The usual remedies failed to benefit at all for twenty hours. Suprarenal substance diminished the hemorrhage in twenty minutes. This persisted for two days, even when the suprarenal treatment was pushed. Recovery was fairly rapid. Three recurrences were observed after two weeks which were with difficulty controlled by the addition of other remedies and measures to the suprarenal treatment. Suprarenal treatment alone did not check the recurring hemorrhages.

Case XXI.—Mrs. H., aged thirty-six years, had an attack of hemoptysis. No cause was discoverable. After aconite, belladonna, hyoscyamus, nitroglycerin, digitalis, ergot, benzoin, etc., failed to benefit, suprarenal treatment was begun and all the other remedies stopped. In two hours the hemorrhage which had persisted for three days was completely checked. A rapid recovery followed.

Twenty-three Cases of Uterine Hemorrhage from Various Causes.

Case I.—Mrs. M. T., aged forty-nine years, had an attack of uterine hemorrhage due to carcinoma. Suprarenal treatment was administered and a prompt cessation of the hemorrhage occurred. A return of the hemorrhage, three weeks later, was also promptly checked by the suprarenal.

Case II.—Mrs. W., aged fifty-eight years, also had an attack of uterine hemorrhage due to carcinoma. The administration of the suprarenal powder was followed by a prompt checking of the hemorrhage. No return of the hemorrhage was noted for six weeks.

Case III.—Mrs. B., aged sixty-six years, had a similar history to Case II., only that the hemorrhage was not so promptly checked. Fifteen minutes at least elapsed before the hemorrhage began to diminish.

Case IV.—Mrs. K., aged twenty-eight years, had an attack of postpartum hemorrhage following a protracted labor. There was uterine inertia. The suprarenal powder in eight minutes diminished the hemorrhage considerably. The uterus soon thereafter was firmly contracted and the patient recovered rapidly.

Case V.—Mrs. G., aged twenty-one years, had a similar history to Case IV. The suprarenal powder also worked admirably.

Case VI.—Mrs. M. S., aged thirty-six years, also had a history similar to Case IV. The effect of the suprarenal powder was more rapid in this case.

Case VII.—Mrs. S., aged twenty-six years, had an attack of postpartum hemorrhage following an apparent normal labor. The uterus was soft and flabby. The suprarenal powder was administered and in ten minutes the hemorrhage was almost completely checked and the uterus was contracted. Recovery was rapid.

Case VIII.—Mrs. M. G., aged thirty-three years, had a similar history to Case VII. The same beneficial effects were also observed.

Case IX.—Mrs. C., aged twenty-nine years, had a similar history to Case VIII. The same beneficial effects were also observed in this case.

Case X.—Mrs. M. R., aged nineteen years, had an apparent normal childbirth. On the third day

she sat up in bed and at times would stand up. Uterine hemorrhage was brought on which was promptly diminished by the suprarenal. Removal of the clots from the uterus was necessary before the hemorrhage completely ceased. Recovery was rapid.

Case XI.—Mrs. M. K., aged thirty-six years, had a profuse uterine hemorrhage due to an incomplete abortion at six weeks. She was almost exsanguinated, unable to speak and she had six attacks of syncope within fifteen minutes. The pulse could not be felt at the wrist. In fact she was moribund. Suprarenal powder was administered and in six minutes the hemorrhage had almost ceased, the pulse became perceptible at the wrist and the uterus began to contract. Removal of all the secundines by operative procedure completely controlled the hemorrhage. Recovery was protracted.

Case XII.—Mrs. I. H., aged twenty-eight years, had an attack of uterine hemorrhage due to an incomplete abortion. Pressure on the fundus expelled the uterine contents, but failed to check the hemorrhage. The suprarenal extract markedly decreased the hemorrhage in ten minutes and checked it in four hours. Recovery was rapid.

Case XIII.—Mrs. C., aged twenty-seven years, had a similar history to Case XII. The same beneficial results were obtained with the suprarenal extract.

Case XIV.—Mrs. E., aged thirty-nine years, had a similar history to Case XIII. The same beneficial effects with the suprarenal extract were also noted.

Case XV.—Mrs. A. C., aged twenty-seven years, had symptoms of threatened abortion at four months. The suprarenal powder checked the hemorrhage almost immediately, the pains began to disappear and the uterus became softer. Suprarenal was administered four times a day. Recovery was rapid and abortion was averted. The patient was afterward delivered of an eighth-month infant.

Case XVI.—Mrs. M. O'C., aged thirty-two years, had a similar history to Case XV. The administration of the suprarenal powder was followed by admirable results. In both cases the abortion was averted and pregnancy went on uninterrupted to full term.

Case XVII.—Mrs. C., aged twenty-six years, had a similar history to Case XVI. The beneficial effects of the suprarenal powder also became rapidly apparent.

Case XVIII.—Mrs. H. G., aged twenty-two years, had an attack of threatened abortion at ten weeks. The hemorrhage, which was profuse, was considerably diminished in less than a half-hour after the administration of the suprarenal extract. The dose was repeated every half-hour. The uterus soon began to contract and expelled its contents with only a slight loss of blood. No recurrence of the hemorrhage was noted and the patient made a rapid recovery.

Case XIX.—Mrs. E., aged thirty-nine years, had a similar history to Case XII. The suprarenal also checked the hemorrhage quite rapidly. Though convalescence was slow the patient made a good recovery.

Case XX.—Mrs. I. S., aged thirty-seven years, had an attack of hemorrhage following a complete abortion. Pressure on the fundus and hot acetic acid douches gave but little relief. Suprarenal powder diminished the hemorrhage considerably within fifteen minutes and in three hours it had almost entirely ceased. The dose was repeated every two hours. Recovery was uninterrupted.

Case XXI.—Mrs. M. D., aged twenty-nine years, had a similar history to Case XX. The administration of the suprarenal powder was followed by its usual powerful and rapid results. Recovery was exceedingly rapid.

Case XXII.—Mrs. I. S., aged thirty-eight years, had a similar history to Case XXI. The administration of the suprarenal powder was followed by marked benefit. Recovery was rapid.

Case XXIII.—Mrs. M. O'G., aged twenty-three years, complained of uterine cramps and continued hemorrhage three weeks after labor. Curettage failed to stop the hemorrhage altogether. The administration of three doses of the suprarenal substance completely and permanently controlled the hemorrhage. The patient's recovery was rapid.

A Case of Hematemesis.

Mr. J. M., aged forty years, married, had an attack of appendicitis complicated by malaria of the tertian type. He was convalescing from his illness when he was attacked with a severe hematemesis which was probably due to the continued use of saline cathartics. The usual treatment did not benefit any in ten hours. The suprarenal substance was then employed and in fifteen minutes the hemorrhage was markedly decreased. The dose was repeated every half-hour. In three hours the hemorrhage was completely checked. No return of the hemorrhage occurred four weeks after. The patient recovered.

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HYSTERICAL HEMIPLEGIA TREATED BY SUGGESTION, WITH REPORT OF A CASE.

BY HENRY LYLE WINTER, M.D.,

OF NEW YORK;

CLINICAL INSTRUCTOR IN DISEASES OF THE NERVOUS SYSTEM, UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE (MEDICAL SCHOOL OF THE NEW YORK UNIVERSITY); ASSOCIATE IN ANTHROPOLOGY, PATHOLOGICAL INSTITUTE OF THE NEW YORK STATE HOSPITALS.

The following case is fairly typical of a by no means rare class of cases which should always be borne in mind in attempting differential diag-

noses of disorders of the central nervous system. For this reason and because, in this country at least, records of such cases are not common, I venture to report the present case *in extenso*.

Edward S., married, aged thirty-eight years. Born in United States of German parents. Occupation, barber.

Family history: Grandparents, negative. Mother died of apoplexy during confinement, aged thirty-eight years. This was the second attack. First attack three years previous. Mother's only brother living and well, but of very emotional nature. Father, living at present, aged seventy years, suffers from double cataract. Two of father's brothers became blind at about same age from the same cause.

Personal history was negative up to ten years of age. The death of his mother occurred at this time and was announced to him under conditions which excited him greatly. He became mentally depressed and at the funeral attempted to throw himself into his mother's grave. From that time he has continued to be very emotional, and at present laughs and cries without provocation, not infrequently laughing when the occasion calls for serious action. These emotional outbreaks are so pronounced as to interfere with his business and the discipline of his home. At eleven years of age, the patient had an attack of Bell's palsy, which has never entirely disappeared. He has had no other illness up to April, 1899. At that time he says that while asleep he dreamed that he was falling, and awoke to find a considerable loss of power in the right hand and, somewhat less marked, in the right leg. His voice, previously firm and clear, became weak and husky. He told his wife that he had had a "stroke." These symptoms continued for about two months, during which time he was under treatment. The arm recovered first and then the leg. Patient says that speech never became perfectly normal. Patient has always had the well-defined idea that he would die of paralysis, and the same idea was apparently held by other members of his family. He had been bowling considerably about the time the above symptoms appeared, and his family had told him to stop that form of exercise because it would lead to paralysis. He, himself, ascribed the condition to excessive bowling. On November 13, 1899, he began to suffer with severe occipital headache, which continued for several days. On the 17th, four days after the onset of the headache, the right hand began to feel numb and weak and the headache ceased. About two hours later the voice began to diminish in volume, and after the lapse of about two hours more the leg began to feel "lifeless."

I first saw the patient three days later, November 20, 1899. At that time there was a right hemiplegia with almost complete aphonia. The paralysis was more marked in the leg than in the arm. Pressure on the dynamometer registered 40 with the right hand and 100 with the left. The superficial and deep reflexes were slightly increased on the right side. The muscles were slightly spastic. Irregular spots of partial anesthesia were present on the dorsal surface of the hand, over the right deltoid muscle, and on the right side of the face. There was complete anesthesia about the mouth on both sides. Examination of the throat by Professor Coakley revealed a perfectly healthy larynx without any paralysis. The emotional condition above referred to was very marked; patient cried during entire examination. Heart, arteries, and kidneys were normal.

The history and condition of the patient were suggestive of a psychical origin for the hemiplegia and I decided to treat him on that basis. I gave the patient positive assurance of speedy recovery and advised him that the leg would recover first, then the arm, and, finally, the voice. I then prescribed ammoniated tincture of valerian in dram doses, repeated three times daily, and told patient that his leg would be much improved when he returned.

On November 27th patient reported improved. The paralysis in the leg was greatly diminished. Dynamometer registered a pressure of 50 with the right hand and 100 with the left. Condition of voice unchanged. Reflexes still slightly increased on right side. The anesthetic spots have disappeared from the hand and diminished in size over shoulder, but remained the same on the face. Patient was advised that the leg would be entirely free from paralysis when he next returned, and that the arm would be greatly improved and voice stronger. Medical treatment continued.

December 4th patient again reported. The paralysis had entirely disappeared from leg. Dynamometer registered a pressure of 65 with the right hand and 105 with the left. Reflexes normal. Condition of voice unchanged. Anesthetic areas had disappeared from shoulder and diminished in size and degree on face. The valerian was continued and patient advised that by the time of his next visit he would be entirely well.

Patient reported on December 11th. At this time the paralysis in arm had disappeared. Dynamometer registered 110 right and 100 left. Reflexes normal. The aphonia, however, was still present. The inability to speak above a whisper did not appear to the patient to be of grave consequence, and he ceased treatment.

While the aphonia and the anesthetic areas were suspicious elements and the case had recovered in the manner suggested and without medical treatment, I was unable at that time to decide positively that the origin of the condition was purely psychical. The possibility of its having been due to some temporary occlusion in the cerebral circulation, thus of organic origin, could not be overlooked. I made a note in my case-book merely to the effect that the case was *probably* of psychical origin, basing my opinion, as suggested above, on the patient's history as well as on the conditions.

On December 12, 1900, about one year after the occurrence of the conditions just mentioned,

the patient came into my office dragging the right leg and with the right arm hanging. He could not speak above a very low whisper and it was only by putting my ear close to his mouth that I could hear what he said. He pronounced the words properly, but seemingly with great effort. He said that, except for a weakness in his voice, he had been perfectly well from the time I had last seen him until two days before. At that time he went to his home, after bowling for about two hours, and was preparing for bed when he felt dizzy. He sat down and almost immediately lost consciousness. This lapse of consciousness lasted for about five (?) minutes and when he recovered he could not move his arm or leg nor make himself heard when he tried to speak. He suffered from a slight occipital headache and soon fell into a deep sleep which lasted all night. In the morning he felt well, with the exception of the paralysis.

On examination I found a complete right hemiplegia, including the face. (At the first attack there was no paralysis of the face except what remained of the old Bell's palsy.) The muscles were in a spastic condition and the leg and forearm were contracted. The reflexes were only slightly increased. The vocal cords and larynx were not examined. The entire right side of the face was anesthetic, but there were no areas of anesthesia elsewhere.

This time I concluded if possible to decide the nature of the paralysis and gained the patient's consent to induce hypnosis. I made him no promises beyond stating that I believed the treatment would be of benefit to him. During the first three days I was unable to induce anything but a light sleep, failing to get the patient to respond to any suggested movements. At the fourth trial, however, the sleep was considerably deeper. In this state the conditions remained unchanged. At this time I told him that I was going to apply a very powerful drug to his tongue, after which he could speak distinctly. Taking a swab of cotton I wet it with warm water and applied it to the tip of the tongue, at the same time asking, "How do you feel now?" "Very well, thank you," the patient replied in a moderately strong voice. I then told him that I was going to awaken him and that after five minutes he would feel that his tongue was warm and would speak about it, his voice being strong and natural. After awaking him I waited six minutes and then as he failed to speak, asked him if everything was all right. He shook his head, but said nothing and after waiting a moment took up his hat and said that he was going home. His voice was about the same as before the hypnosis.

The same plan was pursued on the following day. About five minutes after I had awakened him he suddenly put his hand up and touched his tongue at the same time saying, "Doctor, my tongue burns." His voice was loud and clear, but he evidently did not notice this fact because when I said "Why, your speech is all right now," he began to deny it, but was convinced by the continuation of its full volume, and became greatly excited. After the excitement had subsided I examined him and found that the paralysis of the face had also disappeared (except, of course, the remains of the old Bell's palsy.) The patient conversed with me for several minutes, the voice retaining its strength and fulness.

On the next day the voice still continued strong and has remained so to date (June, 1901.) The paralysis of the face had not returned. Patient was again hypnotized and asked if he could walk without dragging his feet. He replied that he could not. "Yes, you can," I replied. "Try it!" He refused to try and I again ordered him to walk. This time he stepped, but dragged his leg. The command was repeated. He hesitated for a moment and then walked normally. I asked him what the trouble with his arm was and he replied that it was paralyzed. I told him that it was not, and ordered him to put it out. He tried but apparently could not; then tried again with greater success. I urged him to put it out straight and he complied without hesitation. I placed the dynamometer in his hand and commanded him to press it, which he did, registering 100. After making him exercise the arm in various ways I told him that the paralysis was all gone, and that it would never trouble him after he woke up. Then seating him, I told him to open his eyes. For a few minutes he sat watching me while I wrote and then, apparently forgetful of the former paralysis, reached out his right hand and took his hat from the table. I then bade him good morning, and he left without making any reference to his condition.

The next morning he returned accompanied by his wife, who said that while he had used his arm and leg well, he had been stupid and dull since he arrived at home the preceding day, and had failed to take any interest in things which ordinarily appealed to him. Patient appeared still to be partially under hypnotic influence, and I accordingly re-hypnotized him and after repeating the same commands as on the previous day I told him that he would be wide awake as soon as I touched his eyes and told him to open them. After I had done this the patient remained seated for a moment and then jumped up and began walking up and down the room considerably excited. I spoke to him and he immediately controlled himself and sat down and talked rationally. There was absolutely no paralysis (except, again, the remains of the Bell's palsy), and the voice and speech were perfectly normal.

The patient reported to me from time to time up to May 1, 1901, when he left town. There has been no return of the trouble but the emotional disturbances still occur, though not so frequently.

In using the term "hysterical" in this case I am following a time-honored custom with which I am not in sympathy. "Hysterical" in this sense means either that the paralysis is an incident of an attack of hysteria or else that it has

no known anatomic basis. In the latter case "hysterical" and "functional" are synonyms and are meaningless labels which we put upon certain diseases while waiting for some one to demonstrate the underlying physical bases.

It is not impossible that in the field of nervous diseases our hopes in this direction may ultimately be realized, though a review of the progress and status of neuropathology is not particularly encouraging. At any rate, even if some of these obscure conditions do not lie beyond reach of microscopic examinations of dead tissues, it must take years of patient research before the tissue changes, if any exist, are revealed. In the meantime we may elect to wait for the pathologist or we may attempt a purely theoretical explanation of the conditions. The latter is, in my opinion, the more scientific plan.

Several theories have been advanced, the most widely known of which is probably that of the Nancy School.[1] The conceptions of Bernheim do not, however, appear to explain the various conditions with which we come in contact clinically. My own views are based upon the theories advanced by Sidis,[2] which leave as little to be desired by the medical mind as any purely theoretical explanation.

As a first step in what we may call our psychophysiological theory, we must accept the further theories of the neurons and of neuron retraction. Attempts to prove by histological research that the contact between the neurons is a physiological process and not an anatomical state, and that neurons retract, have proved of negative value; but Van Gieson[3] has shown, reasoning by analogy, that neuron retraction should exist. The results of the researches of Apathy and others, which indicate the existence of a true anatomical connection between the neurons, were gained by examination of the lower, automatic centers where we would expect to find such conditions, and are of no value whatever as arguments against the retraction theory.

According to the psychophysiological theory, cerebral activity, accompanied by consciousness which is expressed in sensory, volitional, and intellectual processes, is the result of the activity of certain cells which are grouped, or aggregated, or associated into a psychical center (producing a psychical process) by means of the movements of their terminal end-brushes in response to certain stimuli. The normal condition of any neuron (or group of neurons) entering into any psychical process, consists in the contiguity of the terminal end-brush with the dendrons of its neighbor (or associate.) If we accept this theory as explaining normal psychical activity or normal consciousness, it is evident that abnormal consciousness or psychical disturbance would result from any failure of the terminal end-brush of any neuron to establish the proper contact with its neighbor. If the neuron were retracted the center would cease to exist, its components being disaggregated or dissociated. Postulating that retraction does exist, its causes may be a traumatism, infection, autoinfection, cardiac or arterial disease, mental shock, prolonged mental concentration (autosuggestion), or suggestion. The clinical evidences of retraction, or, perhaps I had better say, the clinical phenomena explainable by the theory of retraction, are numerous; disturbances of motion like the case above reported, many forms of insanity, abnormal mental states which do not fall within any of our classes of insane, paroxysmal attacks of pain of a neuralgic type, many of the phenomena of neurasthenia and hysteria, and, perhaps, certain joint, visceral and vesical affections. Therapeutically, the theory is that properly-applied suggestion, no matter what its origin, acts to overcome this neuron retraction and restores the association between the neurons, thus re-establishing the group of aggregation. It is evident that in the mental condition which we recognize under the name of the *subconscious state* there must be less resistance to suggestion than when the subject is actively conscious, and for this reason suggestion under hypnosis is more often successful than it is without it.

In the case herein cited we must consider two sets of neurons which we know anatomically as motor cells and their processes, and also certain other sensory-motor (psycho-motor) neurons which have not been isolated, but which we suppose form the higher or volitional portion of the motor apparatus. The neurons which we know as anatomical entities are an upper set extending from the motor (sensori-motor) region of the cerebral cortex to the anterior horn of the spinal cord, and a lower set extending from the anterior horn to the periphery. The neurons which we have by any histologic research been unable to associate with the motor apparatus (but which none the less must be a part of it) are the cells and fibers lying principally within the parietal cortex, designated by Starr as the sensori-motor cortex. Under normal conditions these several sets of neurons are physiologically associated and motor impulses arising in the cells of the sensori-motor cortical areas are transmitted through their processes to the cerebral motor neurons and thence by the spinal motor neurons to the periphery, finding expression in muscular movement. In an organic cerebral lesion involving the cortex it is probable that the higher sensori-motor neurons are destroyed (or impaired) as well as the cerebral motor neuron. If, however, the lesion occurs in the internal capsule or in the pyramidal tract, it includes only the motor neuron, the impulse does not reach the lower neuron at all, and a paralysis results. In the latter instance the impulse originated properly and it failed of its normal result of muscular motion merely because of the destruction of the integrity of its pathway of transmission.

Logically, there is no reason why we could not have a physiological as well as an anatomical

[1] Bernheim. Suggestion Therapeutics.
[2] Sidis. "The Psychology of Suggestion."
[3] Van Gieson. Address before the American Medico-psychological Association, 1899.

solution of continuity in this pathway. Therefore in the case herein cited my theory is that the paralysis was brought about, not by disease of the nerve process, but by a retraction of the terminal end-brushes of the sensori-motor (psycho-motor) neurons, thus preventing the impulse from reaching the distinctly motor neurons. The etiologic factors were an inherited predisposition or mental instability, shock at the age of nine years (increasing the instability), and the fear of paralysis kept constantly in the foreground of the patient's consciousness by his family (suggestion) and himself (auto-suggestion). Suggestion may thus be regarded as the exciting cause. This being the case, the desired therapeutic results would be gained by anything which would remove the effects of this suggestion. Logically, counter-suggestion (if the term may be allowed) should act in the desired manner and, clinically, it *did* so act.

As may be inferred from what I have written, it is my desire in reporting this case not merely to make a contribution to medical literature, but to endeavor to impress the medical profession with the necessity of taking a scientific view of this class of cases. If the profession as a whole would take cognizance of and endeavor to deal intelligently with the element of suggestibility which is so prominent in the mental make-up of the human species, the greatest benefit would result.

It is true that cases like the one I have cited have been treated and cured by suggestion employed on purely empirical grounds, but there are cases, more especially of a mental type, in which this will not hold true. In any event empiricism is the stronghold of the charlatan and suggestive therapeutics have fallen under the ban of suspicion because of it. The result is that the medical profession either ignores so-called "functional" and "hysterical" diseases, or puts them to one side as of little consequence or beyond comprehension. If, instead of this attitude, we will adopt some theory which explains these conditions, we will have placed them in a position to be intelligently and scientifically dealt with. I have, therefore, ventured to advocate the theory herein outlined which (of course, theoretically) not only locates the disease, but describes the nature of the "lesion." The acceptance of this theory brings us to the necessity of dropping the terms "functional" (though the diseases are functional in so far as they are not organic) and "hysterical," and substituting a word indicative of a disturbance of psychical activity or consciousness. Apparently "psychical" is the best term, and it also has the advantage of having been in use for some time.

Sufferers from these "psychical" diseases are the ones who are cured by Christian Science, who throw away their crutches after viewing a "sacred relic," or visiting the shrine of a "departed saint," who became well after visiting the osteopath, and upon whom the numerous other charlatans work beneficial results. There is no question but that the wily devotees of these various "opathies" effect cures, and were they able to realize their own limitations, perhaps the only objection which could be urged against their existence would be the fact that they absorb too large a proportion of their client's worldly goods. But through their ignorance they fail to distinguish between the "organic" and the "psychical" in disease, and the sums of their errors and their iniquities are increasing daily. If the medical profession will take cognizance of what we may call the "immaterial" side of human ills and will proceed in a scientific manner it may cure in a legitimate way what the charlatans cure by their false doctrines, and may avoid their mistakes. It is not unusual to hear otherwise intelligent men say that "there is something in Christian Science," failing to realize that the element of good which is supposed to be in it and in all other fictions is in reality within the patient himself: *it is the very important and wofully-neglected element of suggestibility.*

We have recently had a demonstration of the futility of attempting legislation against the "opathies;" but their existence would be short indeed if the medical profession would interest itself as earnestly in the "psychical" diseases as it does in the "organic." Once let the medical profession do for a legitimate fee what Christian Science now does for the half (or whole) of one's fortune and the public will not be slow to leave the impostors to take care of themselves.

147 Hancock Street.

THE REQUIREMENTS OF MODERN SURGERY.[1]

BY J. H. CARSTENS, M.D.,
OF DETROIT, MICH.

If you ask what is modern surgery, I would answer that it is the gospel of cleanliness—*that covers the ground.* Here the problem presents itself and also the difficulties, and here are our failures manifested because of the utter impossibility of absolutely preventing infection in every case.

(1) The great point in connection with successful surgery is the individual to be operated upon. We have minimized the chances of infection of the individual himself, so that, as far as the patient is concerned, we are able to get the site of operation reasonably clean.

(2) The patient is clean, but you cannot operate on his unclothed body. The patient must be covered—kept warm in fact. We insist on absolute sterilization of everything touching the patient, of everything that is in the operating-room; this includes tables, chairs, basins and bowls, and everything that may be used. Considering all these points about the requirements of modern surgery, I believe it to be utterly impossible to carry out modern aseptic surgery in a private house.

Every surgeon understands that I want to call

[1] Abstract of a paper read before the Michigan State Medical Society, 1901.

attention to the fact that the highest and most perfect type of surgery, the technic, the rapidity of the operation, with lessened danger from shock, and the most careful judicious after-treatment of the patient can be better carried out in a well-equipped hospital than in a private house.

(3) Another great requirement of modern surgery is in the surgeon himself. The question of individuality always comes to the front and the power of adaptation to environment of an individual is far greater than the power of environment to shape the course of a person. A patient in perfect health with the greatest power of resistance, the most beautifully equipped hospital, or the most perfectly-arranged operating-rooms, the well-trained nurses, the alert assistants, cannot compensate for a *poor operator.*

When anesthesia was used and the patient was free from pain, slower and more careful operating was allowable, and, in the course of time, this tendency to slowness and deliberation has crept more and more into the ranks of surgery.

Should anyone hint to those of insufficient training that they are not competent to practise surgery because of lack of training, they would feel very indignant, and would probably say, "Why, you had to learn. You killed a lot of patients learning this." That may be, *because we were obliged to in order to open the path for the future, in order to save life and lessen the suffering for coming generations.* That does not say that every Tom, Dick and Harry has to learn this over again, and should make the same mistakes we made. We made the mistakes and in the light of knowledge so acquired we have tried constantly to teach the rising generation of surgeons how to *avoid the mistakes.*

No one can become a modern surgeon by going to a post-graduate school and seeing a surgeon operate at a distance of fifty or a hundred feet. In order to become a modern surgeon he must work directly with some modern surgeon, *he must assist him, he must be with him day after day, month after month—yes, even year after year, but certainly not less than a year.* Then he will probably appreciate the difficulties of diagnosis, the difficulty of deciding upon the right kind of operation, the difficulty of selecting the propitious time and moment for each individual patient. Then he will acquire some of the fine points in the technic, the minutiæ, the attention or non-attention to which small details brings success or failure in an operation.

The man who has never done any mechanical work, who was not allowed to make a little sleigh or a baseball bat when he was a boy, or who never worked in the garden, or played ball, or the piano, or who never made pills in a drug-store, the man who had never developed a mechanical hand from his earliest childhood, will never be a good surgeon. The man who simply studied all his lifetime and whose father was kind enough to buy him everything from a wagon to a book, who was never taught to draw and to cultivate an artistic eye or develop the sense of symmetry and proportion, that man will never be a surgeon; such is not in the nature of things.

Finally you will ask me, "Who could or should be a surgeon?" and in answer I will say that he must be a well-educated physician, must have been a general practitioner and a good therapeutist. He must take up surgery early and gradually develop a surgical hand; he must have been assistant to a first-class surgeon for at least a year, where he will see hundreds of operations of various kinds. Such a man may be a good surgeon. He ought to be in some large town, say a county seat, and, as his surgical practice grows, he should give up absolutely general practice, devoting himself to surgery exclusively, and then his colleagues in the county would support him.

Hence the requirements of modern surgery are: (1) A patient brought to the highest state of resistance to microbic infection and made as clean as possible; (2) an operating-room, preferably in a hospital where everything has been made thoroughly sterile; this includes anesthetizers, assistants and nurses; (3) a surgeon who has a mechanical hand and has received a long and thorough training.

ON THE ABSORPTION OF ALEXINS BY TUBERCLE BACILLI.[1]

(Preliminary communication.)

BY P. A. LEVENE, M.D.,
OF NEW YORK.

IT HAS been shown by different investigators that bacteriolytic or hemolytic sera when digested with dead bacteria of different species lose their bacteriolytic power over other bacteria and also their hemolytic power. If, instead of dead germs, bacteria previously treated with a bactericidal serum heated at 55° C. be allowed to act on a bacteriolytic or hemolytic serum, the latter will lose its power to dissolve other bacteria or red cells. On the other hand, living bacteria fail to produce any effect on a normal serum which has no bactericidal power over the same bacteria.

Speaking in terms accepted by the workers in this line of research, one would have to say that dead bacteria of different species possess the power of absorbing alexins from normal sera. Living bacteria do the same only after they have been previously saturated with the "immune body." They will also absorb the alexins from a serum which has been obtained from an animal immunized against the same germ. Or, in other words, if a given serum loses its alexin on treatment with a living germ, it is safe to say that the serum possesses a bactericidal power over the same germ. Thus, the presence or absence of alexins in a serum treated with living bacteria could serve as an indicator for the presence or absence in it of bactericidal power over the same bacteria. Bordet first recurred to this method in order to prove the presence of "im-

[1] From the Saranac Laboratory for the Study of Tuberculosis, Dr. E. L. Trudeau, Director.

mune bodies" in bactericidal sera. To my mind this is the only method to which one can recur at present for the study of bactericidal power of a serum against a germ that grows like the tubercle bacillus. As is well known, the method of "plate counting" cannot be applied to the tubercle bacillus for this purpose.

In order to apply this method for the study of artificial immunity in tuberculosis the following questions had to be investigated: (1) Whether normal sera lose their hemolytic power on digestion with dead tubercle bacilli; (2) what the hemolytic power of a given serum would be if treated with living bacilli; (3) if an animal should be found whose serum normally does not lose its hemolytic power on treatment with living bacilli, would the serum of a tuberculous animal act differently?

My experiments thus far have been limited to the reaction of the rabbit serum to tubercle bacilli. Two different growths of bacteria were used. One had been constantly transplanted for many years on beef-broth media, and would fail to produce acute tuberculosis in the rabbit (these cultures will be referred to as attenuated); the other was a culture which had been very virulent for dogs about six months ago, and since then had been kept up on serum-tubes. Four-day-old tubes were used (they will be referred to as "virulent" cultures).

As a result of my experiments I wish to mention, first, that there exists a certain "minimum" quantity of dead tubercle bacilli, which it is necessary to add to a given serum in order to deprive it of its hemolytic power. On addition of smaller quantities of the germs the hemolytic power is only diminished, not wholly abolished; second, living virulent bacilli added in quantities approximately equal to the "minimum" of the dead bacilli have scarcely any effect on the hemolytic power of a serum; added in larger quantities they diminish the hemolytic power of a serum, but in a lesser degree than do dead bacteria.

Further, I found that the "attenuated" cultures act in the same manner as the dead germs.

When the serum of an animal previously treated with the extract of crushed tubercle bacilli is tested with living virulent bacteria it loses its hemolytic power much more readily than does a normal serum.

Dr. Baldwin and myself are engaged in the further investigation of all these questions. We are also engaged in experiments in the same direction with the bacillus of cattle tuberculosis with a view to approaching the question of the transmission of cattle tuberculosis to man and *vice versa*.

One More Cure for Consumption.—A Cracow correspondent says that M. Ryshnowski, a Polish engineer, has discovered a new gas called electroid, which doctors there and at Lomberg are prescribing for consumption. It is inhaled for periods ranging from half a minute to a quarter of an hour. It is also said to be effectual in anemia and neuroses.

MEDICAL PROGRESS.

THERAPEUTICS.

Improved Method for Introduction of Stomach Tube.—The serious objection of nausea and gagging upon the introduction of the stomach tube, especially for the first time, has caused its abandonment in many cases where its use is fully indicated. H. Crenshaw (Med. Rec., Dec. 21, 1901) has devised a novel method which, he says, obviates this disagreeable feature. The end of tube is frozen for two or three inches by ethyl chloride and when introduced causes anesthesia of the mucous membrane to which it is applied. It may thus be introduced, for the first time, with practically no gagging, straining, or nausea. When it reaches the stomach the temperature has been sufficiently raised to cause no harm to the gastric mucosa.

Urea in the Treatment of Tuberculosis.—The value of nitrogenous products in the treatment of tuberculosis is regarded by H. Harper (The Lancet, Dec. 7, 1901) as in scientific harmony with the belief of Sir Dyce Duckworth and others, in the apparent immunity of gouty persons to tuberculosis. At the British Congress on Tuberculosis Sir H. Weber stated that out of 25 cured patients within his knowledge 18 had developed gout in some form. In some way urea is believed by Harper to increase the natural immunity of the individual to tuberculosis. Whether it stimulates the phagocytes or increases the bactericidal property of the serum or stimulates the cells to elaborate antitoxin remains to be proved. A number of tuberculous cases, some of long standing, some of recent invasion, are described by Harper, in which a synthetic urea was successfully used. Cases suitable for this treatment are classified as follows: (1) Circumscribed pulmonary tuberculosis in which the sputum exhibits an abundance of tubercle bacilli and only a few cocci; (2) enlarged tuberculous glands; (3) tuberculous pleurisy; (4) tuberculous laryngitis; (5) lupus; (6) tuberculosis of the peritoneum with free fluid; (7) tabes mesenterica. Cases of acute miliary tuberculosis with high temperature do not react favorably, nor were good results obtained in pulmonary tuberculosis when the temperature exceeded 101° F., or when the sputum showed a predominance of cocci. In carrying out the treatment doses of 10 or 15 grains were first given thrice a day, with gradual increase to 40 or 50 grains.

Therapeutics of Light.—In 1894 it was shown by Marshall Ward that the bactericidal action of light depends mainly on the violet and ultra-violet rays. Five years later Finsen called attention to these same rays as the cause of the effects of light on the normal skin. Since then, says S. Bang (Berl. klin. Woch., Dec. 9, 1901), practically no progress has been made in the study of the photo-biological principles upon which the modern light-therapy depends for its advancement. It is known, however, that the inflammatory phenomena resulting from the action of chemical rays on the skin differ from those produced by all other forms of irritation. There is a "positive" and a "negative" light-therapy. The latter rests upon the knowledge that chemical rays exert a harmful influence in certain cutaneous affections, and endeavors to withhold these injurious rays. This method has been used successfully in the treatment of local affections of the skin, and Finsen and others have applied it to the treatment of variola with apparently good results. The attempt to utilize "Finsen's red room" in the treatment of scarlet fever and measles has thus far given no convincing results. The "positive" light-therapy employs light for general as well as local treatment. For gen-

eral treatment sunlight and electric light are employed. The sun-bath is a very old method for the treatment of constitutional diseases. Rikli and Lahmann have revived it, but do not rely on it alone; they combine with the sun-bath fresh air and the process of "hardening," while Rikli in addition makes use of vegetarian diet. The knowledge that certain conditions can be improved by such combined treatment is clinically important but not scientifically interesting, because it is impossible to estimate the relative values of the various elements. The wonderful workings of the electric light in the treatment of general diseases are regarded by Bang as far from proved. It is too early to undertake the treatment of tuberculosis, syphilis, arthritis, diabetes and nephritis by this agency. The only branch of "positive" light-therapy which rests upon proper scientific and practical foundations is that which concerns itself with local treatment. Bang believes that the treatment of lupus by Finsen's method is destined to replace surgery and cautery. Over six hundred cases have been treated in Copenhagen, with positive results in 98 per cent. of the total number. The treatment of lupus erythematosus was less satisfactory. Alopecia areata can usually be cured in a few sittings; here, as in the treatment of acne vulgaris, the bactericidal action of the light rays asserts itself, while in nævus vascularis the irritation of the skin is the essential factor.

Galvanism in Sterility.—As it is generally believed that whenever lifeless spermatozoa are found in the semen soon after ejaculation has taken place, the patient is irreparably sterile, the following case reported by G. M. BLECH (Phila. Med. Jour., Dec. 7, 1901) should be of interest. His patient was a man of thirty-two, in fair general health, of good habits, with no history of syphilis, but an indefinite one of gonorrhea many years before. Married eleven years, no offspring. A specimen of semen was secured immediately after intercourse and examined. Spermatozoa were found, well developed, but lifeless. Tonics and hydropathic measures were used for three months, and then an examination disclosed no change. The electric current was then resorted to, the treatment consisting of negative galvanic applications to the prostatic urethra, five to twelve milliamperes. Twelve treatments were given (two per weeks), each sitting lasting from five to eight minutes. An examination after this showed numerous living spermatozoa. Pregnancy has since then been determined in the wife.

Artificial Light in the Treatment of Tuberculosis.—During the past few years considerable attention has been devoted in some quarters to the treatment of pulmonary tuberculosis and various other tuberculous lesions by the means of intense artificial light. A serious drawback to this treatment has been the expense of the apparatus necessary for its fulfilment and the great difficulty in regulating the dosage necessary for individual cases. F. DE COURNIELLES (Comptes Soc. Biol., Nov. 22, 1901) employs the voltaic arc for this purpose. The source of light is placed very near the patient, the heat rays being removed by a special apparatus designed for this purpose. In this manner one obtains with a voltaic arc of 5 to 12 amperes effects equal to those obtained by the employment of 80 amperes in other apparatus. A convex mirror concentrates the rays upon the desired region. This method gives a minimum amount of light and a maximum effect therefrom. Many cases of various tuberculous lesions have been successfully treated by this method, and its employment in all tuberculous conditions as a routine procedure is strongly urged.

Sensitiveness to Remedies.—From experiments on a number of animals of the same species and then of different species, E. MAUREL (Bull. géné. de Thérapeutique, Nov. 15, 1901) schedules the tissues in their order of sensitiveness to various therapeutic measures. The first tissue on the list is the most sensitive, the last the most resistant. For *heat* the order is leucocyte, striated muscle, cardiac muscle, sensory nerve, motor nerve, smooth muscle, blood. *Cold* gave the same results. *Emetine* affects in order smooth muscle, sensory nerve, striated muscle, cardiac muscle and the red and white blood-corpuscles. From the point of view of toxicity, that is, the order in which the tissues die, under *emetine* the list runs as follows: Sensory nerve, motor nerve, striated muscle, cardiac muscle, smooth muscle, leucocyte, and blood. *Bonjean's ergotine* gave the same order for toxicity and sensitiveness, viz., smooth muscle, blood, motor nerve, striated muscle, sensory nerve, leucocyte and cardiac muscle, the last two being practically the same, and the three preceding so close as to be difficult to determine. *Lead acetate* is the same for toxicity and sensitiveness; blood, smooth muscle, sensory nerve, motor nerve, striated muscle, cardiac muscle and leucocyte. *Strophanthin* affects cardiac fiber, sensory nerve, motor nerve, striated muscle, smooth muscle, blood and leucocyte, the same for toxicity and sensitiveness. For toxicity *mercury* gives leucocyte, blood, cardiac muscle, smooth muscle, sensory nerve, motor nerve, striated muscle; but for sensitiveness, smooth muscle comes last. For toxicity of *digitalin* the order is cardiac muscle, sensory nerve, motor nerve, striated muscle, smooth muscle and the blood-corpuscles. For sensitiveness, smooth muscle, cardiac muscle, sensory nerve, motor nerve, striated muscle, and the blood corpuscles. *Caffeine* gives for toxicity sensory nerve, motor nerve, striated muscle, leucocyte, blood, smooth muscle and cardiac muscle. For sensitiveness, the order is sensory nerve, motor nerve, striated muscle, leucocyte, smooth muscle, blood. *Sparteine* for toxicity, sensory nerve, motor nerve, striated muscle, cardiac muscle, smooth muscle, leucocyte, blood; for sensitiveness, smooth muscle, cardiac muscle, striated muscle, motor nerve, sensory nerve, leucocyte and blood. The application of these facts may be shown in the case of digitalin. It acts successively on smooth muscle, cardiac muscle, sensitive nerve; therefore, in order that digitalin may affect the sensitive nerve, it must first influence the smooth and cardiac muscles. Likewise its toxic effect is felt by cardiac muscle, sensory nerve, motor nerve, etc., that is, the cardiac muscle is the first to be poisoned.

Quinine by Hypodermoclysis.—In order to avoid the pain, induration and possible necrosis incident to the subcutaneous administration of strongly acid solutions of quinine in cases of pernicious or very severe estivo-autumnal malaria, when administration by mouth is impracticable, J. W. GRAY (Memphis Med. Monthly, Dec., 1901) uses one-fourth to one-half per cent. of quinine in normal salt solution by hypodermoclysis. By this method the eliminative action of the salt solution is added to the specific effect of the quinine; absorption is rapid and cinchonism prompt. In very urgent cases a similar solution may be thrown directly into a vein.

Treatment of Alcoholic Delirium.—Several suggestions, contrary to the generally accepted ideas in regard to the treatment of alcoholic cases, are given by T. D. CROTHERS (Med. Rec., Dec. 14, 1901). The removal of alcohol is the first step and this should always be done abruptly, even though the delirium continues or increases. Slowly withdrawing the alcohol, giving narcotics and overfeeding, is extremely dangerous treatment in some cases. Recovery is delayed and complications encouraged. Removal of the toxins must be accomplished as soon as possible. After the spirits

have been removed small doses of calomel and salines must be given till free catharsis results. A combination of magnesium sulphate and potassium bitartrate, two parts of the latter and one of the former, acts very well. Next in importance are hot-air and hot-water baths which should be given daily so long as the delirium continues and less actively throughout convalescence. Narcotics should be used sparingly for the vital centers are already depressed and the addition of chemical stupor is hazardous. For the craving for alcohol that follows the withdrawal, give strong solutions of quassia or cinchona, given every hour; these will soon break up this impulse and produce an intense disgust for spirits. Feeding is another important factor and since assimilation and digestion are enfeebled forced feeding is contra-indicated. The author's experience has been that small quantities of easily digested solid foods may be cautiously given after delirium has ceased, but that total abstinence during the early stage of delirium is productive of the best results. Liquid foods, he believes, are actually culture mediums for the formation of new toxins and perpetuation of the old ones. Restraint depends largely on the patient and in certain cases as much liberty as possible should be allowed. Cardiac failure seldom occurs, but strychnine and hot and cold water-bags over the precordium are safe and efficient remedies. For the insomnia and various neuralgias which follow the subsidence of the delirium baths, moderate exercise in the open air and static electricity are valuable measures. During the stage of delirium, which is usually self-limited, it is best to keep the patient in bed as much as possible, but if he insists on being up, he should be kept in a state of sharp muscular activity by means of baths, massage, or walking. When delirium subsides the muscle and nerve rest should be increased.

Treatment of Round Worms.—Undoubtedly santonin is the best drug used in cases of round worm, but it must be properly administered. J. P. Maxwell (Indian Med. Rec., Nov. 20, 1901), who has had a large experience in China where such cases are common, says that there are two classes of patients—those with urgent symptoms and the chronic cases. The former are best treated with a dose of oleum ricini, ℥i, and santonin, gr. iv. After a week has elapsed the treatment for chronic cases should be given. The latter do best on the following. Santonin, gr. i; hydrarg., c. cret., gr. i., given t.i.d. for several days. No ill effects were seen when this dosage was continued for several weeks. Another combination which works well is the above prescription with the addition of quinine sulph., gr. iij. The patient should always be warned about the disagreeable symptoms which may arise—xanthopsia, vomiting and sometimes a rise of temperature.

A New Valerian Preparation.—Valerian and its derivatives have fallen largely into disuse on account of their unstable character, disagreeablee odor, and in many cases, doubtful physiological effect. A new preparation is announced by Kionka and Liebrecht (Deut. med. Woch., Dec. 5, 1901) which is stated to obviate these difficulties. The new drug is marketed under the name of "Valyl" and is a diaethylamid of valerianic acid. It is a colorless liquid, of pungent odor and burning taste. It was tried in one hundred cases, without unpleasant after-effects and with the following results: (1) In hysteria, even of severe grade, with cardiac complications, the results were fairly good, also in several cases of neurasthenia and hypochondriasis. (2) Traumatic neurosis, hemicrania and various neuralgias were greatly benefited. (3) Menstrual pains, with the accompanying headache, were improved greatly, also the climacteric disturbances. The drug is given in capsules, each containing two grains mixed with a small quantity of tallow; from one to six may be taken, three times daily.

Gymnastics in the Bath.—Treatment by this system was first proposed by Leyden and Goldschneider in Germany and by Bozzola in Italy. Good results of personal experience in its application to muscular atrophy and partial paralysis of nervous origin are reported by G. B. Allaria (Riv. Crit. d. Clin. Med., Nov. 30, 1901). The fundamental principle of this method is derived from the physical law of Archimedes, *i. e.*, a body immersed in water loses weight in proportion to the amount of liquid it displaces. Its advantage lies in the lightening by immersion of the part to be exercised; thus enabling the patient to execute movements which would be impossible out of the bath. Many of the consequences of paralysis from cerebral hemorrhage, etc., are exaggerated by inertia of the patient; this method serves to combat the manifestations and consequences of affections of the nervous system by increasing the muscular nutrition and lessening the rigidity of joints. It is especially useful in tabetic paraplegia; this condition necessitating, however, long-continued treatment and the exercise of caution in its application owing to the fact that the tabetic sense of fatigue is blunted; and there is a consequent risk of continuing exercise beyond the physiological limit, thus increasing the degenerative processes of the nervous system by overfatigue. In such cases prolonged rest between treatments should be advised. In the class of cases in which motion is limited by pain, as in sciatica and rheumatism, exercise in the bath has been found valuable, both through the greater facility of motion and through the calming effect of warm water; and though the first attempts at exercise may be painful, the continuation of methodical movements seems to exert an inhibitory influence upon the pain. The simplicity and effectiveness of this treatment merits its wider knowledge and use, either alone or in conjunction with massage, passive motion, or electrotherapy. A daily bath should be given of 10 to 20 minutes' duration; the temperature being regulated according to the nature of the malady, and ranging from tepid (26°-29° C.) to hot (35°-39°) in painful affections. The efficacy of the bath may be increased by raising the specific gravity of the water by addition of sodium chloride or other salts. Like all other therapeutic measures, it has its contra-indications; notably in cases where there is a tendency to cerebral congestion, there is danger of provoking fresh hemorrhage, and in such cases it is well to keep an ice-bag upon the head.

Treatment of Dysentery with Peroxide.—This method of treatment was used with great benefit in ten cases ranging from two to twelve years of age by Rocaz (Jour. de Méd. de Bordeaux, Dec. 1, 1901). Lavage with hydrogen peroxide was practised 2 or 3 times daily; the effect was speedy and marked. Within two or three days the character of the stools changed materially; blood and mucus disappeared, the stools became less and less frequent, and the sphincter regained its tonicity. That a cure may be assured, it is necessary to continue medication some days after subsidence of symptoms.

Treatment of Hemorrhoids.—After a few days' application of the following remedies pain and hemorrhage disappear and at the end of from three to five months the hemorrhoids are completely retracted. Prior to application the parts should be thoroughly disinfected with carbolic solution. Ointment for external hemorrhoids:

℞	Chrysarobin	0.8
	Iodoform	0.3
	Ext. belladonna	0.6
	Vaseline	20.0

Suppositories for internal hemorrhoids:

R	Chrysarobin	0.08
	Iodoform	0.08
	Ext. belladonna	0.01
	Cocoa butter	2.00

—Jour. de Méd. de Paris, Dec. 1, 1901.

Rectal Injection of Ergotin for Metrorrhagia.—Where ergotin is not well borne by mouth, it can, after preliminary lavage, be injected by rectum, a teaspoonful of the following solution being used, in three tablespoonfuls of tepid water:

R	Ergotine	10.00
	Distilled water	70.00
	Glycerine	20.00
	Salicylic acid	0.20

—Jour. de Méd. de Paris, Dec. 1, 1901.

Creosote in Pneumonia.—Concerning the use of creosote in pneumona, J. L. VAN ZANDT (The Southern Pract., Dec., 1901) says that a large percentage are cut short or aborted, almost all the rest are mitigated, and only very few are not benefited by it. It is important that the medicine be not omitted as soon as the active symptoms subside, as there may be a recurrence. The carbonate is the best form; guaiacol and its salts do not seem to exert the same specific action.

SURGERY.

Abdominal Injury.—The non-operative treatment of severe abdominal contusions is a method which is regarded as inadvisable by E. LEXER (Berl. klin. Woch., Dec. 9, 1901). Statistics of severe contusion of the great abdominal organs, collected by Petey and others, show a mortality of over 80 per cent. where expectant treatment is followed. When injury of the stomach or intestine has occurred conservative (non-operative) treatment of the case must not be considered without a thorough review of the possible results of the injury. If adhesions form about the site of a perforation, these may at any time be torn. A crushed area of intestinal wall may become necrotic, with general peritonitis as the result. Abscesses may develop in the vicinity of the rupture or contusion, producing severe pains and fever; rupture of the abscess wall is always imminent, hence the possibility of general peritonitis suddenly developing. If such abscesses be opened and drained fecal fistulæ may form, requiring further operation. Cicatricial stricture at the site of the injury may cause serious chronic trouble. A large hematoma, intraperitoneal or mesenteric, may give rise to various pressure symptoms. Lexer illustrates by a series of clinical histories the many untoward results of abdominal contusions, and urges the necessity of operating at once on the appearance of the first suspicious signs of internal injury. Even where rupture of the liver has occurred the possibility of successful interference should encourage prompt interference. Wilms recently reported a case which was saved by prompt treatment. The two cases described by Lexer, however, terminated fatally.

Knife-wound of the Heart; Sutured; Recovery.—A soldier who had been stabbed came under the observation of M. FONTAIN (La Presse Méd., Dec. 4, 1901) nearly two hours after the receipt of the injury. He complained chiefly of precordial pain; respiration was not embarrassed; the pulse was 120, small, easily compressed, but regular; the heart-sounds were muffled and distant. The wound was in the third intercostal space and apparently extended downward and inward. Operation was at once begun, under chloroform. A flap was cut consisting of the anterior portion of the third, fourth and fifth ribs and intercostal tissues; this was turned outward. The left lung was found intact; the costophrenic sinus was filled with blood which issued from a pericardial wound about 12 mm. long. This wound was enlarged to permit the exploration of the heart, the apex of which was first seized with Kocher forceps. A wound about 8 mm. long was readily discovered over the left ventricle, perpendicular to the direction of the muscle-fibers of the heart, gaping, and giving vent to a jet of blood with each systole. The wound was sutured with catgut; the pericardial sac was cleaned and the pericardium closed by catgut sutures. The thoracic flap was turned back and its borders sutured. The operation consumed forty-five minutes in all. During the operation the needle with which the ventricle was sutured accidentally penetrated the wall of the heart and entered the cavity; to this accident was attributed a pulmonary infarction which occurred six days after the operation. Later the patient suffered from a pneumonia of the left base, complicated by an empyema which necessitated thoracotomy. Despite these accidents recovery followed. The present functional condition of the heart is not wholly satisfactory, tachycardia is present and the arterial tension remains very low.

Treatment of Colles' Fracture.—Because of its very interesting relationship to the recent treatment of fractures of the humerus by making use of the tauted periosteum as a splint an article by J. GRIFFITHS (British Med. Jour., Dec. 7, 1901) which calls attention to the application of this principle to fractured radii is of great interest. After detailing the anatomy of the part very carefully, he shows that a formerly unrecognized laxity of the ligaments of the wrist is the factor which has yielded the "give" on traction upon the open hand. To this "give" he attributes many of the failures to reduce properly and cure Colles' fracture. A very small proportion of the cases are impacted. This ligamentous laxity allows of so much "give" that in a median anterior-posterior section through the forearm and hand it amounts to more than a third of an inch. Further traction upon the living hand sets up a state of contraction in both flexors and extensors which it is very difficult to overcome and which is often mistaken for impaction. The attachment, the length and the strength of the posterior ligament of the wrist is of great surgical import in this new method of treating Colles' fracture. It corresponds to the untorn periosteum which splints the humerous when fractures of this bone are treated by the method of hyperflexion at the elbow, and seems to be the most important factor, not alone in effecting reduction but in holding the fragment in place. It resolves itself then to this, that the treatment consists simply in making the posterior ligament tense. The normal hand inflexion is carried slightly to the ulnar side. In making his splint (which is best built of copper-nickel, as this weighs but six ounces) the author allows for this deviation and carries the metal anteriorly from just below the elbow to the web of the fingers. This is held in place by three leather bands, so that at all times the parts are open to inspection. The splint can be readily adjusted to fit any adult forearm, so that it is not an expensive mode of treatment. The best results have been obtained by continuous immobilization without massage for four weeks. At the expiration of this time the movements at the wrist are free in all normal directions and the deformity is scarcely appreciable.

Intra-articular Osteochondroma Producing Ankylosis of the Knee; Operation; Recovery.—Radiography proved decidedly useful in a case of osteochondroma reported by MENCIERE (Le Prog. Méd., Nov. 30, 1901) showing the cause of ankylosis of the knee in a vicious position to be an intra-articular tumor which was independent of the great bones entering into the

formation of the knee-joint. The character of the growth being known, it was possible to determine in advance the various steps of operative procedure. Ablation of the tumor was practised without any injury to the function of the quadriceps extensor; the restoration of the power of flexion and extension followed. The writer is unable to find any previous record of a case of intra-articular osteochondroma affecting the knee-joint.

Symptoms and Treatment of Movable Kidney.—A certain degree of mobility is natural to the kidney, although the contrary might be inferred from many writings on the subject. H. MORRIS (The Lancet, Nov. 30, 1901) regards a kidney as abnormally movable when the lower half of the organ or more than the lower half so descends during deep inspiration that it can be felt between the fingers of the two hands. In extreme cases the organ can be retained between the fingers so as to prevent its return to its original position during expiration. The only justifiable operation is nephropexy, and this writer would advise operation when the symptoms are severe and are not relieved by rest, mechanical appliances and appropriate medicinal and dietetic treatment. Morris believes that belts and pads are useless in uncomplicated nephroptosis, although they may have some value in the rare cases in which movable kidney is associated with enteroptosis. He attaches no value whatever to rest in the recumbent position, having tried this treatment without result for six or nine months in cases afterward relieved by operation. The average mortality of nephropexy is slightly over 1 per cent. Nephropexy has cured 90 per cent. of the cases in which pain was the leading symptom; it has been less successful when performed mainly on account of flatulent dyspepsia and constipation, and is not at all satisfactory in cases presenting nervous symptoms chiefly. If hysteria or neurasthenia is clearly secondary to a movable kidney, Morris would perform nephropexy after trying palliative means, but would warn the patient or her friends of the speculative nature of the result. When renal crises are a feature of the case, prompt operation should be urged because of the constant risk of hydronephrosis and recurrent pain. When a movable kidney gives rise to no inconvenience, operation ought not to be thought of and a belt need not be worn.

Subphrenic Abscess After Appendicitis.—Probably no other disease has commanded such thorough discussion as appendicitis, but latterly its complications, immediate and remote, are demanding attention. C. A. ELSBERG (Ann. of Surg., Dec., 1901) discusses the relation between appendicitis and subphrenic abscesses. This condition rests upon the following symptoms: Pain located in the right hypochondrium, of sudden or gradual onset, slight and increasing or intense from the beginning, localized between the eighth and eleventh ribs and the mammary and posterior axillary lines or in the right scapular region. The hepatic region shows fine friction râles, dulness and flatness extending from day to day and finally overreaching the normal hepatic dulness. Displacement of the liver downward is usual later in the disease. Gas in the abscess obliterates the hepatic dulness. The differential diagnosis between this condition and pleurisy with effusion rests on these facts: Pleurisy begins with signs of affection of the chest, rapid respiration, cough, expectoration and shows a level of dulness concave upward and changing with the position of the patient. Subphrenic abscess, as such, has no chest signs and the level of dulness is either horizontal or convex upward and fixed without reference to position. Pleurisy has breath and voice changes, which are absent with the abscess. The liver is always depressed downward by abscess, rarely by pleurisy unless excessive. The heart is displaced by pleurisy and the chest bulges, but not by abscess. If both these conditions are associated great difficulty in diagnosis arises. The history and the aspirating needle may establish the diagnosis. When perforation of the diaphragm occurs in abscesses it is usually accompanied by the sudden onset of pain and by signs of fluid in the chest. Litten claims that a well-marked, depressed, undulating curve visible in the side of the thorax during inspiration and a convex prominent line moving upward during expiration are pathognomonic. Owing, however, to the necessary fixation of the diaphragm, this sign is not reliable, as is also one described by Fürbringer, who stated that a needle passed into the abscess cavity during inspiration and expiration would move in the opposite direction to that it would take if in the pleural cavity. The differential diagnosis between subphrenic and hepatic abscess is very difficult, sometimes impossible. In both dulness is increased upward and downward; in both breathing is heard above the level of the dulness and in both the clinical symptoms may be the same. Hepatic abscess is, however, the more rare after appendicitis, presents pain in the right scapular region more frequently, paralysis of the diaphragm less frequently, chills with profuse sweating oftener and to a greater degree. The pus from abscess of the liver is always very different, being as a rule full of liver cells, chocolate-colored and with little or no odor. Pus from a subphrenic abscess, on the other hand, is almost always foul owing to the source of infection in the intestines.

Osteomalacia.—An interesting case in which castration is reported to have effected a cure is quoted by HOLLANDER (Deut. med. Woch., Nov. 28, 1901). His patient was an unmarried woman, subject for ten years past to chronic rheumatism. To this was added later on interference with the motor functions. Examination showed a depression of the lumbar part of the spinal column into the pelvis to such an extent that the last pair of ribs were below the brim. A double ileo-psoas paralysis resulted from the changed relations of the points of origin and insertion of the muscles, this also preventing abduction of the thigh. Electricity and drugs failed to give any relief and as a last resort castration was done. The results were marked, the severe pains ceased; in two weeks the patient could walk about with the aid of a cane and in six months very little interference with locomotion was apparent.

Surgical Treatment of Chronic Nephitis.—Just as the operation for cirrhosis of the liver was discovered by accident while operating upon supposed cases of tuberculous peritonitis and by chance causing an omental anastomosis, so is the operation for chronic nephritis now advised after successful results have been obtained in cases which were originally operated upon for simply movable kidneys. G. M. EDEBOHLS (Med. Rec., Dec. 21, 1901) reports eighteen cases of chronic nephritis which have been operated upon by him, in the first five of which operation was done in spite of the nephritis and for serious symptoms of nephroptosis rather than with any idea of benefiting the parenchymatous condition. The marked improvement of the renal symptoms, however, led to investigation and many subsequent operations have been done for the single indication of Bright's. Edebohls' operation for nephropexy consists in an exposure of the kidney by a posterior incision down to that organ, entirely freeing it from the fatty capsule and exposing it upon the posterior surface of the back. An incision is then made through the capsule from pole to pole along the external border and the capsule is stripped carefully from

the surface as far around toward the pelvis as possible and excised. The kidney is then replaced and adhesions are soon formed between its surface and the surrounding fatty capsule. The explanation for the improvement in the nephritic symptoms is that anastomoses are soon formed between the blood-vessels of the kidney and the surrounding tissues and the blood supply of this diseased organ is thereby increased. The author's experience with these cases leads him to say that he is now prepared to operate upon any patient with chronic Bright's who has no incurable complication or one absolutely forbidding the administration of an anesthetic and whose probable expectation of life is not less than a month. The latter proviso is made in view of the fact that the beneficial effects of the operation can scarcely become operative in less than ten days.

Surgical Treatment of Pelvic Suppuration.—Various applications to the cervix can hardly do harm and certainly do no good in this condition. If after a fair trial of other and better medical means the inflammation either progresses or remains stationary the aid of the surgeon must be sought. J. L. FAURE (Gaz. de Gyn., Oct. 15, 1901) enumerates the following as the proper surgical procedures: Dilatation of the cervix with prolonged drainage is the simplest method and should always be tried in mild cases. Its precise method of action is not understood, although the softening of the uterine tissue and the diminution of resistance at the mouth of the womb with a restitution of an anteflexed organ may be some of the factors which are at work. Curetting may often benefit some cases but often aggravates others. The disturbance of the uterus is so great that in acute cases with active symptoms it had best be omitted. Catheterization of the tubes was once a fad. It is self-evidently a dangerous and uncertain treatment. Simple incision and drainage of the collection of pus is in a large number of cases a most favorable step, especially when the drainage is made perfect from the outset and kept so. Extirpation of the deceased adnexa is a more radical and, in selected cases, a well-advised move. Hysterectomy is the final degree of radical measures whether of the vaginal or abdominal route. Both methods have their advantages and each its own indications. The vaginal route is without visible scar and without much tendency to hernia and usually with good drainage. It may be advantageously applied to the less extensive cases. Abdominal hysterectomy possesses the great advantage of a wide free field of operation and should be resorted to when the disease is advanced above the plane of the true pelvis. Such are the methods of approaching suppurating inflammations. Such as are non-suppurating belong in a class by themselves and are usually later in coming to operation. The point for deciding when to interfere is that of pain. Often a large mass may be carried in the pelvis, if not purulent, without much harm, but, if pain or other symptoms are caused by it, the comfort of the patient will be profoundly affected and an operation will be necessary.

Radioscopy and Bone Disease.—Many limbs have been sacrificed by unnecessary, and many lives lost by deferred, amputation on account of errors in diagnosis. Radioscopy is not a substitute, but a valuable adjunct to the well-tested clinical methods of diagnosis, says C. BECK (Ann. of Surg., Dec., 1901). His chief points are that, if with this means of examination, obscure swelling of a joint shows no impairment of its integrity, ostitis, tuberculosis, syphilis or injury can be excluded. A light shade in the midst of the deep shadow of the bone cortex is shown by abscesses beneath the periosteum or within the medulla; increase or change in shadow by necrosis and very late stages of inflammation; integrity of the articular outlines by acute rheumatism and other acute inflammation early in their course; irregular articular outlines by chronic rheumatism; sharp outlines and deep shadows by arthritis deformans according to the amount and density of the bone-deposit; loss of joint and bone outline, cloudiness and roughness, by tuberculosis in its early stages; translucency by cheesy foci; loss of bone cortex shadows by the last stages and deep shadows of the calcareous degeneration; fine spiculated trabeculæ radiating from the surface by the periosteal sarcoma; absence of the shadows of bone tissue by a myelogenous sarcoma; a strange mixture of light and dark shadows by the alveolar sarcoma; apparent integrity with an undefined affection of the medulla by aneurism; irregularity along one side of the bone by chronic osteoperiostitis; large ossified areas at the epiphyses which should be translucent by congenital syphilis; light areas in the shaft by the insufficient calcareous deposits in syphilis; synostosis between the epiphyses and diaphyses by the excessive calcareous deposit at this point in syphilis; irregular shade foci by gummata; changes in any of the syphilitic pictures by treatment; deep shadows by some forms of cysts; shadows conforming to the shape of the bone by osteoma; absence of or variations in the normal shadow in osteomalacia; very light regular shadows by chondroma; broad heads and thick bases in the phalanges by acromegaly; hypertrophy of the epiphyses of the long bones and rich osseous proliferations with little lime salts by myxedema; absence or irregularity of shadow following the characteristic deformity by rickets; both atrophy and hypertrophy in the small bones of the hand by Raynaud's disease. In studying the diseases of the hand, forearm, foot and leg it is necessary to use soft tubes because a hard one will penetrate the deposits to such an extent that there would be too little or no impression by them of the photographic plate.

Spinal Anesthesia.—Operations have been performed in a series of forty cases after the injection of tropacocaine and eucaine A, by W. KOPFSTEIN (Wiener klin. Rundschau, Dec. 6, 1901). He finds that in the majority of cases complete anesthesia is produced from the feet upward to the navel or higher, but that with some patients strong idiosyncrasies exist, manifesting themselves in headache, vomiting, subsequent severe pain at the site of operation and even dangerous collapse. Tropacocaine alters cardiac and respiratory action much less than eucaine and the former is said to be much safer in old people and has the further advantage that it causes no fever and less intense headache. There is absolutely no way of telling in advance how the injection will agree with a patient. It is not necessary, indeed even not advisable to let the patients fast before the operation, since they react less severely with a full stomach.

Diagnosis of Appendicitis.—The leucocyte count is considered a valuable adjunct in the diagnosis of the various forms of appendicular inflammation by H. CURSCHMANN (Münch. med. Woch., Nov. 26 and Dec. 3, 1901). He sets down the following rules: In the great majority of cases the simple forms of appendicitis may be distinguished from the suppurative ones by a white-cell count, and this holds true especially where the physical signs and temperature curve are uncertain. The simple cases show an absence or only slight increase of leucocytes and their number generally falls to or nearly to normal in a few days. High counts in these cases may, however, occur in the beginning of the disease; the number, however, rarely exceeds twenty to twenty-two thousand, and if the number of leucocytes remains high and other lesions, such

as pneumonia, may be excluded, abscess-formation is almost certain. If an operation is performed, a count near the normal will soon be obtained provided free drainage takes place, even if this occurs into the rectum or some other hollow viscus. A methodical examination of the blood in all these cases is a much more trustworthy guide than the fever curve. Concerning cases in which small abscesses undergo a spontaneous cure or where perforation into the peritoneal cavity takes place, the author has no experience, but it is probable that in the latter the number of white cells rapidly sinks to or below the normal.

Accidents in Renal Surgery.—An interesting case of nephrectomy is related by H. Lindner (Münch. med. Woch., Nov. 26, 1901). In attempting to remove a large carcinoma of the kidney, the inferior vena cava was torn through, owing to the close connection of the tumor with this vessel. Clamps were immediately applied, but unfortunately the distal end was seized first, so that a large amount of air was sucked into the vessel and death occurred soon after. The author discusses the possibility of resection in continuity of the inferior vena cava and from the published cases finds that this is not incompatible with life, though most cases died soon after from other causes. Resection of portions of the vein which were infiltrated with malignant growths and subsequent suture of the vein have been accomplished with better success.

Treatment of Eroded Joints with Gold.—The distressing deformity, which always seems worse to the lay mind because of the mystery attached, attending excision of a major joint, in particular the shortening, can, according to an interesting case of C. B. Keetley (Brit. Med. Jour., Dec. 7, 1901), be entirely overcome. The treatment consists of a series of three operations: (1) Curettage, by which as little as possible of the bone is removed; (2) the insertion of a gold plate between the bones; (3) the removal of this plate. An interval of about one month should elapse between these procedures. The results of this treatment are promising. In place of the marked shortening which is so often evident in cases of tuberculous elbow in which there has been a very free removal of bone, there is here no chance whatever for shrinkage. Unfortunately, the use of gold plates is more or less limited for in a large proportion of tuberculous joints it is desirable to obtain bony union. In selected cases, however, and the greater number would be from the elbow, it is possible to get an excellent range of motion without the danger of shortening which exists in the ordinary operation. The author was brought to consider the use of gold from having frequently used it as a means of closing wide hernial openings. Occasionally, because of the nearness of the metal to the skin, it became desirable to remove it. Invariably the gold was found resting in a dense sac the walls of which were so hard and smooth as to glisten like silver. The desirability of using some absorbable metal is discussed with the conclusion that it is to be avoided, first, because the absorption must be uneven—thus leaving several loose bodies in the joint toward the end of the process; secondly, because of the difficulty of being sure just when total absorption has taken place.

MEDICINE.

Rheumatic Affections of the Throat.—For many years it has been thought that rheumatism is connected in some way with inflammation of the throat and more careful investigations seem to increase that belief. W. Cheatham (Med. Rec., Dec. 14, 1901) shows that two theories have arisen; one is that the rheumatic poison enters the system through the tonsil and the other view is that the tonsillitis is one of the rheumatic manifestations of the rheumatic diathesis. Although the germ which has been found in the blood and joints of acute rheumatic cases, and which is supposed to be the specific cause, has also been present in large numbers in tonsillar affections, yet sufficient work has not been done to enable sound conclusions to be drawn. Abrahams believes that rheumatic sore throat may be of two kinds, viz., faucial erythema and tonsillitis proper. The former is more common in adults, the latter in children. Faucial erythema is an initial manifestation of acute rheumatism, tonsilitis may be the actual initial primary lesion. Quinsy or peritonsillar abscess is the one throat lesion which does not seem to have any relation to rheumatism and is in no way influenced by rheumatic remedies. Further research is necessary to determine the form of angina which is definitely associated with rheumatism and also to discover the true cause of rheumatism.

Cause of Rheumatism.—The digestive tract has recently been held responsible for various systemic affections on account of its depraved functions and consequent auto-intoxications. M. A. H. Thelberg (Med. Rec., Dec. 14, 1901) suggests also the relation of rheumatism to the digestive tract. Immunity is due to an antitoxic substance soluble only in an alkaline medium. In rheumatism there is a decreased alkalinity due to the presence of saro-lactic acid, and the diplococcus of Poynton and Paine, which is supposed to be the specific cause of rheumatism, grows best in a medium made slightly acid by lactic acid. Prout believes that exposure to cold accounts for the increased percentage of lactic acid, while Latham suggests muscular hyperoxidation. The author of this article offers the theory that faulty digestion, assimilation and elimination, whereby the natural immunity is greatly decreased and the nerve centers made more susceptible to invitation, may be the predisposing cause, offering an excellent medium for the growth of the specific germs. Accordingly, even in acute cases he has discarded the use of salicylates and pays especial attention to the food and the treatment of the stomach, liver and intestines. He does not exclude proteids, but carefully regulates their ingestion.

Strongyloides Intestinalis in the United States.—In China and certain other countries of Asia, also occasionally in Europe and Australia, instances of intestinal infection with this parasite have from time to time been recorded. Hitherto no cases of this disease have been reported in the United States. W. S. Thayer (Jour. Exp. Med., Nov. 29, 1901) during the past three years has observed three cases which were admitted to the wards of the Johns Hopkins Hospital. The first case was diagnosed as amebic dysentery and intestinal infection with the trichomonas intestinalis and strongyloides intestinalis. The ameba coli, as well as the afore-named parasites, was present in the feces. There was also a liver abscess. This was evacuated and ameba coli found in the contents. The case proceeded to a fatal termination. The second case presented the ordinary appearances of a chronic diarrhea. Here also the strongyloides intestinalis was found in the feces. This case recovered. The third case was also clinically a chronic diarrhea. The same parasite was present in the feces as in the second case. Here the principal treatment consisted in the internal administration of tannogen, ten grains, every four hours. Complete recovery took place. In all probability these cases all originated in Maryland and Virginia. It is evident that diarrhea associated with the presence of strongyloides intestinalis occurs in the United States. As in most cases originating elsewhere in temperate climates, the development of the sexually-diffrentiated, free-living generation was in these instances apparently unusual,

the direct transformation of the rhabditiform embryos into filariform larvæ predominating. The discovery of these parasites in this country should emphasize the possibility that uncinaria duodenalis may also be present. More systematic examination of feces both in public clinics and in private practice is to be much desired.

Chronic Hyperplastic Tuberculosis of the Intestine.—During the last ten or twelve years a few writers, particularly French and German observers, have from time to time called attention to the existence of a form of tuberculosis affecting various segments of the intestinal tube and characterized by a variable, but usually a considerable degree of thickening of the wall of the intestine. A case reported by A. J. LARTIGAU (Jour. of Exp. Med., Nov. 29, 1901) is unique because of the length of gut implicated and the absence of distinct stenosis and of apparent ulceration of the mucous membrane anywhere in the intestine. The patient was a male forty-nine years of age. There was no family history of tuberculosis. About three years before his death he began steadily to lose weight and complain of fatigue. Coincidently there appeared a universal dark pigmentation of the skin. After a short time he began to suffer with cramp-like pains all over his abdomen which became periodical in character and gradually increased in severity. Vomiting occurred from time to time. No mass in the abdomen was at any time felt by the patient, but a vague sense of discomfort and heaviness was constantly present. The stools and urine were normal in appearance. There was a gradual increase in the severity of all the symptoms. The temperature became somewhat elevated, an evening rise of 1 to 2° F. being observed. Finally, some days before dissolution, right-sided lobar pneumonia appeared and death shortly supervened. At autopsy the following anatomical diagnosis was made: Hyperplastic tuberculosis of the small and large intestine; lobar pneumonia of the right lower lobe; edema of the lungs; tuberculosis of adrenals and of mesenteric lymph-nodes; acute splenic tumor; cloudy swelling of liver; slight chronic diffuse nephritis. The tuberculous process of the intestine extended from the upper third of the ileum to the sigmoid flexure. The changes were most markd in the lower portion of the ileum, the cecum and the ascending colon. The most conspicuous feature of the mucosa was the presence of numerous papillomatous masses of an average length of 4 or 5 mm. These masses consisted of an epithelial layer covering a central portion of adult connective tissue rather loosely arranged in which a moderate number of round cells were discretely spread. Numerous strands of unstriped muscle tissue were seen between these connective tissue bands. No tubercles, necrosis or giant cells were observed. Tubercle bacilli in enormous numbers were present in the epithelial layer of the lower ileum, cecum and ascending colon. In other portions of the intestine few or no tubercle bacilli were found in this layer.

Relative Importance of Muscle and Valves in Heart Disease.—Certain forms of dilatation of the heart involve dilatation of the orifices so that the murmurs produced are very loud. These, together with hermic murmurs and the anonymous murmurs heard under the clavicle and in other places, render the diagnosis of valvular disease a difficult proceeding. LOUIS FAUGÈRES BISHOP (Pediatrics, Dec. 15, 1901) believes that the important consideration is the integrity of the heart muscle, and that, when this is healthy, a moderate degree of leakage need cause no anxiety. Having detected an enlarged contour to the heart, how much is this due to thickening of the muscle and how much to overdistention of the cavities? Irregularity is not necessarily due to myocarditis; a cardiac neurosis may be combined with a slight deformity of the valves. The test is how well the heart does its work over a long period of time, and how well it stands a considerable amount of exercise.

Prognosis of Interstitial Nephritis.—The question of prognosis is often of the greatest importance in chronic Bright's disease and to this end early diagnosis and proper classification are necessary. L. BOUVERET (Wien. med. Blaetter, Nov. 14 and 21, 1901) considers three groups of cases as follows: First, those in which the subjective symptoms are slight and amount only to to a feeling of oppression and cardiac palpitation on exertion, frequent urination and perhaps attacks of coughing; on physical examination the pulse will be found to be harder and somewhat more frequent than normal, the urine is increased in quantity and of normal or slightly increased specific gravity and contains no albumin. It is especially after the chief meals of the day that the patients feel most uncomfortable. The number of such cases that come under observation is small and an actual cure is possible. Not so, however, the second class, in which the course is progressive and uremia a frequent complication. The symptoms are in the main the same but more pregnant. The hypertrophy of the heart is perceptible and gallop-rhythm occurs, while the urine is characteristic and contains traces of albumin. Death may occur in from one to two years or remissions even up to ten years are possible; the prognosis depends upon the amount of improvement which follows a trial cure consisting in absolute rest and milk diet. The third class includes all those in which, though a cure is impossible, a total standstill of the morbid process is to be anticipated. In these cases, repeated examination does not show any change, and with proper care the prognosis is good.

Carcinoma and Malaria.—Stimulated by the recent article of Loeffler, H. KRUSE (Munch. med. Woch., Nov. 26, 1901) investigated the prevalence of both diseases in the various districts of Italy with the result that the number of cases of both diseases by no means stands in inverse relation to each other, but that the frequency of carcinoma is high in those provinces where the medium height of the inhabitants is greatest, while those of small stature, brunette type, narrow head, low forehead and relatively large mouth are comparatively immune. The same may be said of those possessed of similar racial characteristics in other countries.

Epidemic of Catarrhal Jaundice.—Because of the widespread interest recently manifested in the etiology and differential diagnosis of jaundice, this account of an outbreak in Derbyshire by H. PECK (Brit. Med. Jour., Dec. 7, 1901) is of more than passing import. The epidemic occurred in a very unusually healthy region in the colliery districts, two little villages having supplied the 750 cases. The houses are of brick, but have only one door, so that the ventilation is none too good. The water supply is from a main which watered 23,000 souls. Each house has a privy. The conservancy system is in vogue and the pits, 35 to 46 feet from the houses, are regularly emptied by the company's agents. In conclusion, Health Officer Peck states that (1) the disease is probably icterus gravis or epidemic jaundice, sometimes called Weil's disease; it differs from previous outbreaks in its onset, being sometimes gradual, and in the comparatively low temperatures recorded; (2) the incubation period is perhaps six or seven days; (3) the duration from exposure to infection to commencing recovery is ten or twelve days, but the jaundice may persist; (4) the mode of infection cannot be deduced by a consideration of the cases recorded in this outbreak, but bacteriological examination might elucidate it; (5) the disease is

not due to the ingestion of food or drink; the popular impression that it was occasioned by the use of a drinking-water which was more or less heavily charged with yellow pigment is erroneous; (6) the disease is probably conveyed by individuals. There exists very definite proof that it was carried by a collier from one village to another.

NEUROLOGY AND PSYCHIATRY.

Three Cases of Family Periodic Paralysis.—In previously recorded cases of family periodic paralysis there has been no instance where the paralytic attacks have occurred before the age of six years. Three cases are reported by E. F. BUZZARD (The Lancet, Dec. 7, 1901) and in at least two of them the attacks were present from infancy. The tendency of attacks to follow hard exercise has been noticed by nearly all observers. In the cases described by Buzzard it was easy to produce attacks for purposes of observation; the paralysis only supervened, however, after an interval of rest. In characteristic attacks the proximal limb muscles are first and most often affected; those of the trunk are involved also in attacks of some degree of severity, while only in the most severe attacks are muscles affected which are supplied by cranial nerves. Examination of the patient in the intervals between attacks fails to reveal any abnormality of body or mind; a diagnosis cannot really be made without an opportunity to witness an attack. In the light of our knowledge of this disease vague stories told by a mother of a child who "falls about" or "refuses to get up" periodically should receive some consideration. In severe attacks the condition of the heart and the difficulty of respiration are sufficiently grave to make us regard every such occurrence as a source of possible danger. As yet no death directly due to the disease has been recorded. No means of alleviating or curing this disease has yet been discovered; massage, electricity and strychnine have been used for many months without success. What is needed is a knowledge of the pathology of the disease: as yet we have only conjectures.

Case of Asthenic Bulbar Paralysis (Myasthenia Gravis.—The pathology of the various forms of bulbar paralysis is now fairly well understood. "Asthenic" bulbar paralysis is an exception; no lesion has yet been found to acount for this disease, and W. K. HUNTER (The Lancet, Dec. 7, 1901) raises the question whether the condition should not be regarded as a general myasthenia especially affecting the muscles supplied from the bulb. This writer reports the case of a man of 58 who experienced at first difficulty in speaking and swallowing, together with intermittent weakness in the extensor muscles of the neck. There was no family history of nervous ailment. The patient's head would fall forward on his chest unless he prevented this by supporting the forehead with his fingers. There was no spasm of the sternomastoids; the trouble was evidently in the trapezius and erector spinæ muscles, and there was some wasting of the upper fibers of the trapezius. At times there was spasm of the metacarpo-phalangeal joints of the right hand. The patellar reflexes were unduly active, but neither knee clonus nor ankle clonus could be obtained. Sensation was normal in the arms and legs; visual acuity was normal and there was no contraction of the fields of vision. The pupils were equal and responded to light and accommodation. Heart, lungs and kidneys were healthy. Articulation and deglutition grew steadily more difficult; myasthenia invaded the arms and later the legs. Attacks of dyspnea occurred two months after admission and the third of these attacks ended fatally. Postmortem the brain and cord presented to the naked eye perfectly healthy appearances. Sections of the pons, medulla and cord were stained by Weigert's method, Nisl's method and with hematoxylon and eosin. No degenerative change was found in any of the sensory or motor tracts at the different levels, or in the anterior or posterior nerve roots. The sections stained with hematoxylon and eosin showed colloid changes in the vessel walls. The peripheral nerves and the muscles were not examined histologically.

THERAPEUTIC HINTS.

Alopecia Areata.—Shampoo the region every day, then bathe with carbon tetrachloride, which removes grease and micro-organisms, and rub in with slight friction:

℞ Hydrargyri bichlor..... 0.90 (gr. 14)
Camphor ..... 60.0 (℥ij)
Spt. terebinth..... 60.0 (℥ij)
Spt. lavand ..... 30.0 (℥j)
Alcohol .....300.0 (℥x)

The neighboring parts should be depilated and touched with a pencil made of

℞ Sulphur precip..... 0.50 (gr. viij)
Resorbin ..... 1.50 (gr. xxiij)
Chrysarobin
Paraffin, aa..... 2.50 (gr. xl)
Ol. theobrom..... 3.50 (gr. lv)

Or a cotton roll dipped in strong carbolic may be laid on until the parts are blanched, when further action of the carbolic is stopped by applying pure alcohol.—M. H. HALLOPEAU. in Bull général de therapeutique, Nov. 15, 1901.

Tuberculosis in Childhood.—The importance of diet becomes greater the younger the victim, and the necessity for artificially feeding infants complicates the problem. In cases under a year old, B. K. RACHFORD (Archives of Pediatrics, Dec., 1901) begins by feeding Nestlé's food alone, and when the stools become normal adds cod-liver oil, pure or in emulsion, to several of the feedings each day. As the patient's condition improves, he gradually substitutes modified cow's milk. He also adds the white of one egg to one bottle of the food, and the yolk of an egg to another. In older children milk and cod-liver oil are the staples, and fresh eggs, good beef and poultry, cereals, fresh fruits, and well-cooked vegetables may be added as age permits. Fresh air and sunshine should be obtained for as much of the day as possible. He uses the following inunction:

℞ Guaiacol 3j
Lanolin .....℥ij
Lard .....℥v

M. Sig.: One level teaspoonful to be rubbed into chest daily at bedtime. This may be applied also over tuberculous lymph-nodes or over the abdomen in tuberculous peritonitis. The carbonate of guaiacol may be given internally, though creosote is preferred. Creosote may be given in capsule or by inhalation.

℞ Tinct. gentianæ.....(℥iss)
Creosote .....(℥ss)

M. Sig.: Three to five drops in a capsule and take every six hours, followed by a drink of milk.

℞ Tinct. opii camph.....℥ij
Creosote .....℥ij
Alcohol .....℥iv

M. Sig.: Five to fifteen drops in creosote inhaler; use fifteen minutes three times a day. The iodide of iron, arsenic, and malt containing diastase, may each have their indications.

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THE NICARAGUA AND PANAMA CANALS.

THE article which is printed elsewhere in this issue on sanitary aspects of the Nicaragua and Panama canals calls attention to a timely and important subject which until now seems to have received but a small share of attention. All are agreed that probably the greatest problem to be faced in constructing the canal is to obtain a sufficient number of laborers and maintain them in a healthful and efficient condition. Yet in the canal discussions which have found their way into print, the question of health has generally been dismissed with but little more than the mention of its importance. To this curiously inconsistent practice even the report of the Trans-Isthmian Canal Commission now before Congress offers no exception. Special interest therefore attaches to the article by Dr. George A. Soper, a specialist in sanitary matters, in which the health conditions which would probably surround the two canals during construction and afterward are very fully and impartially discussed.

Probably no other country which has enjoyed so large a share of public attention bears such an evil reputation for insalubrity as that part of the western continent in which the two canal routes are located. More or less has been known about Central America for four hundred years, yet from the time of the fourth voyage of Columbus, when the country was discovered, up to the present time no credible person has presumed to give the Isthmus a clean bill of health. On the contrary, the experience of sickness and death connected with Central America has earned for it such titles as the "Pest House of the Tropics" and the "Grave of the European."

The habits of the people of the Isthmus render them peculiarly liable to disease, for they are careless of exposure and indiscreet as to diet. Foreigners seldom, if ever, attain the same degree of immunity from disease as that enjoyed by the natives. Of the former, the type which is most suited to endure the hardships of the Isthmian climate is a slender, dark-complexioned man of thick skin; abstemious habits are of great advantage to those who visit the country. No one should engage to work in this region who is not of sound body and mature age.

The construction of a canal across the Central American Isthmus is not free from elements which make the business of protecting the health of those engaged upon the work especially difficult. The sanitary care of an army of soldiers under strict military discipline, in this region, unencumbered by the exhausting labors of digging and building a canal would be a large undertaking. But if we add to the natural disadvantages of climate and topography the stupendous engineering work contemplated, involving an estimated expenditure of nearly 200,000,000 dollars and the continuous employment of ten or fifteen thousand men for eight or more years, it will be seen that the Government has a problem in hand which calls for all the knowledge of hygiene which can be brought to bear upon it.

Nor does it appear that this, our substitute for the old Northwest Passage, is less dangerous to navigators. It is not improbable that more or less apprehension will always be felt that ships passing through the canal will become infected by diseases indigenous to the country, or carried there by vessels from unhealthy ports. Will the Isthmian canal become a focus of disease as well as a focus of trade?

It is not assumed here that a lax sanitary control is a part of the nation's program, nor that the canal would long be permitted to remain a focus of disease should it ever gain that undesirable character. Yet the good faith of those entrusted with the responsibility of setting the project on foot should not be accepted as a guaranty that public health at the canal will al-

ways be efficiently protected. In matters of hygiene the human race is prone to carelessness and unaccountable oversight, and it would not be beyond the range of possibility if plague, pestilence and disease, always the best and too often the only teachers of sanitation, should be needed to point out the necessity of adequately providing for the avoidance of diseases. If the awful history of disease connected with the building of the Suez Canal, Panama Railroad and Panama Canal is not to be repeated, sanitary measures on a scale and of a completeness heretofore unknown in public works will require to be undertaken.

As to a choice between the Panama and Nicaragua routes, a review of the conditions along the two lines can lead to but one opinion. The Panama route is much to be preferred from the standpoint of health. At Panama the seasons are divided into wet and dry periods, as is common in the tropics; there is nothing abnormal in the precipitation or temperature. For four months of the year the weather is clear and practically cloudless. Along a large part of the Nicaragua route there is no dry season. Rain falls day or night and often for days and nights together. The rainfall is distinctly abnormal at Grey Town. The records of precipitation here are the heaviest yet reported for any point on the American continent. The fall of rain for the year 1900 was over 266 inches and has often been in excess of that figure. Over 12 inches of rain have been known to fall in twenty-four hours.

It has been stated that the Nicaragua route has a better history of health than Panama, but any argument which seeks to use the past history of the two routes as an indication of future conditions is specious and misleading. We might almost say that the Panama route is the only one which has a history. Since early in the sixteenth century Panama has been a favorite route for travelers between the Atlantic and Pacific Oceans; nearer our own time, probably more people went to and from California during the gold fever than across the continent in any other way; the Panama Railroad has been in existence for fifty years, during which a vast amount of traffic has passed over its rails; the extensive works of the Panama Canal Company are here. During all this time the Nicaragua route was a wilderness, imperfectly explored.

The health of those employed in constructing, as well as those who will subsequently use these waterways, is an element of superlative importance and one that cannot be neglected when Congress undertakes the consideration of this great engineering problem.

THE CRIMINAL, CZOLGOSZ.

In the current number of the Medical News we present to our readers a full report of the trial, execution, autopsy and mental status of Leon F. Czolgosz, the assassin of President McKinley, together with a report of the anatomical measurements made during life by the Bertillon system, and of the postmortem findings, including anatomical measurements of the head, face, skull, etc., also a graphic anatomical description of the hemicerebra, with plates of the drawings and of photographs—full face and profile—of a postmortem plaster cast of the head, which altogether present a very comprehensive study of the physical, mental and moral status of the most remarkable criminal magnicide of the age.

The joint report of Dr. Carlos F. MacDonald and Mr. Spitzka, aside from its historic importance, is replete with interest to the medical jurist and forms a valuable contribution to the study of criminal psychology. The report is also of interest, negatively, to the psychopathologist as showing that the assassin, Czolgosz, was neither a lunatic nor a so-called degenerate. On the contrary, his history and all the facts in the case, as stated, make straightway for sanity and full responsibility for his act. Moreover, it is gratifying to note that all of the mental experts who examined Czolgosz—three for the people and two for the defence—one of the latter having been selected by the Bar Association with special reference to his competency—agreed unanimously that he was sane and responsible, thus leaving no room for reasonable doubt respecting his mental status. Surely the snap diagnosis of insanity which has already been gravely proclaimed in certain quarters, and which necessarily is based only on exaggerated and sensational newspaper reports, should have no weight against the opinions of the official, and presumably competent, experts, based on personal examinations of the culprit and accurate knowledge of all the facts and circumstances in the case, opinions that are fully sustained by the postmortem findings.

MATHEWS' COLLOIDAL THEORY.

On December 31st Dr. A. F. Mathews, Professor of Physiological Chemistry at the University of Chicago, in a paper read before the American Physiological Society, which was in annual

session in his city, presented a theory of nervous physiology that is of much more than ordinary interest. From the scant and perhaps not altogether reliable knowledge of Professor Mathews' theory which has come before us, we are impressed with the ingenuity and importance of this contribution even though a small part of what the author claims for it shall ultimately find general acceptance among neurological physiologists and pathologists.

The basis of his conception is fairly stated by the author in the three following paragraphs. The remaining eleven of the fourteen heads under which he has given a summary of his discovery to the lay press may be considered in a degree as corollaries.

"First.—Motor nerves contain or consist of a colloidal solution, the colloidal particles of which carry positive electrical charges.

"Second.—Nerve-protoplasm is stimulated by the passage of the colloidal particles from a condition of a solution to that of gelation, or jellying.

"Third.—This change is brought about by the action of ions, electrically charged atoms or groups of atoms, which bear negative charges. The stimulating action of any chemical compound depends on these negative charges. These ions (anions) having one charge, are less efficient than those with two or three. In other words, the stimulating action of any ion is proportional to the number of negative charges it bears."

These motor nerves or any other nerves are not so simple as the foregoing might lead us to believe. They consist of different organic substances, or tissues, which have different functions —the connective tissue sheath, the myelin substance, medullated nerve fibers, which surround the neuraxon. The neuraxon again consists of a ground substance in which lie the fibrillæ that carry the nerve impulses. These fibrillæ are so small that they are scarcely visible under a very high power lens. That these fibrillæ consist of a colloidal solution and carry positive electricity is a deduction very difficult of proof.

In the absence of any knowledge of the experimental research by which Professor Mathews arrives at his conclusions we must confess that they appear to us quite hypothetical and, we suspect, are based upon observations made upon bodies less complex in their chemical structure than are the nerves. It will be exceedingly interesting to learn how he has overcome the great variety of physical and chemical difficulties that surround investigations in this field, and it remains to his colleagues to decide whether or not his methods have always been so perfect as to render his deductions conclusive.

We hope to present to our readers in an early issue a complete review of Professor Mathews' theory based upon information coming through more scientific channels than the lay press.

IMMUNITY AND AGGLUTINATION IN TUBERCULOSIS.

THE relations existing between agglutination and immunity have given rise to much controversy and a vast amount of experimental research. At the present time this question has by no means been solved.

It is probably true, however, that the majority of observers are agreed that in most infections the agglutinative power of a serum is no criterion of the degree of immunity present. Without doubt the major portion of the work which has been done along these lines has been confined to observations of typhoid infection and the conclusions drawn have very largely been limited to such.

Hitherto but little investigation has been given to the agglutination of the bacillus tuberculosis. This is principally due to the fact that much difficulty has been encountered in the mode of preparation of these bacilli, so that they can be advantageously used in such work. Although Arloing and Courmont have given exhaustive directions by the means of which tubercle bacilli may be brought into a suitable condition for this test, other observers have failed by the use of their methods to obtain altogether satisfactory results. For this reason the method recently devised by Robert Koch (*Deutsche med. Wochenschrift,* Nov. 28, 1901) is deserving of special mention. By its use the author has obtained results which if confirmed are far reaching in their significance and of great importance to the clinician in his daily contact with tuberculous diseases.

At the outset it can be stated that the agglutination reaction is of no value as a means in the diagnosis of tuberculosis. Observation has shown that normal human serum in a fairly large proportion of cases contains substances which bring about the agglutination of these microorganisms. Many cases of tuberculosis fail to show a positive reaction. Animal experimentation has demonstrated the fact that so far as tuberculosis is concerned increased immunity in the majority of cases is accompanied by an increased intensity of the agglutinative power of

the serum. Koch by an application of the methods employed in his work upon animals to 74 cases of human tuberculosis has shown that a like condition of things exists in man. As a rule tuberculous subjects who are treated with a series of increasing inoculations of tuberculin show marked increase in the agglutinating power of their serum. Those cases which at the beginning give no reaction or only one in a 1 to 10 dilution by such treatment frequently give a positive result in 1 to 25 and 1 to 50 dilutions. Occasionally very high values are thus obtained. In nineteen of the 74 cases observed positive reactions were subsequently obtained with from 1 to 100 to 1 to 300 dilutions. Coincident with the increase in agglutinative power the clinical symptoms improve. The appetite and bodily weight increase, the temperature diminishes, the cough is lessened in severity and oftentimes the bacilli disappear from the sputum. If at any time during the treatment the immunizing inoculations are discontinued the agglutinating power of the serum falls and the clinical symptoms increase in severity. It is to be remembered that those most suitable for this treatment are patients in the primary and secondary stages of the disease. In no case observed was the subsequent course of the disease unfavorably influenced by this treatment. The existence of high bodily temperatures does not contra-indicate its use.

Whether the results obtained by Koch in the employment of this treatment are to be substantiated by other observers remains to be seen. However this may be, it would appear that, as far as tuberculosis is concerned, the important fact has been established that intensity of agglutination and degree of immunity stand in direct relation to each other. In the judicious handling of tuberculous patients a cardinal point for the clinician to establish is the degree of immunity which the individual possesses to the existing process. Upon this fact depends in a large measure the subsequent management of the case from climatic, therapeutic and prognostic standpoints. Any method by which such can be established is of incalculable value. The further confirmation of the results obtained by Koch will be awaited eagerly by the profession at large.

ECHOES AND NEWS.

NEW YORK.

Lunacy Commission Complete.—By the appointment of ex-Judge Daniel N. Lockwood of Buffalo, formerly a Representative, as a member of the State Commission in Lunacy, that body is once again complete as to membership. The Commission has the power to investigate the condition and administration of the public and private insane asylums and institutions of the State, as well as the treatment of patients in them. The Pathological Institute, which is now in course of reorganization by the new director, Dr. Meyer, is also under the Commission in Lunacy. There will be a meeting of the latter in Albany next Monday to map out the winter's work.

An Old Tapestry for a Hospital.—For the new French hospital which is to be built at Nos. 450 to 456 West Thirty-fourth Street, the French Government has contributed $20,000, together with a valuable Gobelin tapestry, from the painting by David representing Napoleon by Jaffa. It is valued at $50,000, and is to be sold for the benefit of the building fund. The site and building of the present hospital at No. 320 West Thirty-fourth Street have already been sold, and the new hospital, which is to cost $250,000, will be built by the French Benevolent Society. It will embody many French ideas in furnishing and equipment that are new to Americans. One of these will be a completely isolated ward for consumptives on the top floor. The structure will be seven stories high and built of red brick and limestone. Its frontage will be eighty-four feet and its depth ninety-eight feet.

Microscope Stolen.—At some date between the 20th of November and the 26th of December last a Leitz microscope, No. 34,515, with three objectives, Nos. 25,607, 11,207 and 11,235 respectively, was removed from the Bacteriological Laboratory of the New York City Board of Health. Should this instrument or its lenses come to the notice of a reader of this he is requested to treat with the person who presents the goods without arousing his suspicion and immediately notify Captain Titus of the Detective Bureau of New York.

Cause of Prevailing Destitution.—In explanation of the marked increase in the applications for aid received during the last four or five weeks officers of the different charitable societies in this city said recently that it was due partly to the earlier advent than usual of the cold weather, but more particularly to the prevalence of infectious and contagious diseases among the poor. The reports of the Department of Health for the last five weeks show a really startling increase in diphtheria, measles, scarlet fever, and croup, the diseases that find most favorable conditions among the children of the poor. Among contagious and infectious diseases the Health Board also places phthisis, smallpox and typhoid and typhus fevers, but all of these four show a considerable falling off as compared with the last few months, so that the first four named are alone responsible for an increase of nearly 100 per cent. in the last nine weeks. For the week ending December 7th there were 1,406 cases of contagious diseases reported, while for the week ending October 19th there were only 702. These are the extremes in this period of time. The last week in October showed a total of 780, successive weeks showing this increase: 838, 904, 1,045, 1,091, 1,214, 1,406, and 1,365. For the week ending October 10th there were reported 56 cases of measles. Week before last there were no less than 596. With such a sick-rate increase as this the wonder is that the applications for help are not greater than they are.

New York Academy of Medicine.—On January 2d the annual meeting of the Academy of Medicine was held. The annual reports were read as usual, delegates to the New York State Medical Society were elected, and the Symposium on Tuberculosis was continued from the last meeting. Drs. Peabody, Knopf,

Meyer, Loomis and others discussed the general subject and particularly emphasized the need of sanatoria for the care of the tuberculous.

Dr. Carr Injured.—While alighting from a moving street-car on December 30th, Dr. Walter Lester Carr slipped and broke his leg. By the time surgical assistance arrived Dr. Carr had made a diagnosis and by means of his dismantled umbrella had applied an effective temporary dressing. He was removed to the New York Hospital, where he now awaits the repair of his fracture.

PHILADELPHIA.

Census of the Blind in Philadelphia.—A police census of blind persons in this city has lately been made at the instance of the Pennsylvania Home Teaching Society and Free Circulating Library for the Blind. It shows that there are 352 blind persons in the city, 111 of whom are in institutions for the blind. The report is believed to be accurate for all but four of the police districts.

Smallpox in Philadelphia and Camden.—For the week ending December 28th there was a slight increase in cases in both cities. In Philadelphia there were reported 79 new cases and 19 deaths, an unusually large mortality. Free vaccination is to be offered to residents of Camden by house-to-house canvass. The isolation hospital is overcrowded and many patients are quarantined in their homes. Fumigation of all of Camden's mail is being considered by the Board of Health.

Unveiling of Tablet to Dr. Wilson.—On December 28th a tablet to the memory of Dr. Charles Meigs Wilson was unveiled at the Philadelphia Lying-in Charity at Eleventh and Cherry Streets, the tablet being a memorial from the nurses who received their instruction under Dr. Wilson when he was in charge of the hospital from 1884 to 1890. It was largely through Dr. Wilson's efforts that the present large building was erected and he was the organizer of the first class of nurses in 1886. He died in 1891.

Hospitals May Receive Aid from Carnegie.—The local district of mine-workers at Pittsburg have recently been endeavoring to interest Andrew Carnegie in the establishment of a hospital for working-men. In a letter to their president Mr. Carnegie states that he has "often thought upon the hospital question. The first difficulty is to find a central place which all could reach; second, to maintain a first-class institution where its patients are limited to injured workmen. It seems to me that the best plan might be found in arranging with several of the hospitals for a working-men's ward, to which any workman injured in mill or mine would have a right to be sent and all expenses paid. The injured men could then be sent to the hospital nearest or best fitted to render aid." Mr. Carnegie promises attention to the question when he visits Pittsburg in the fall.

Can Osteopaths Legally Vaccinate?—The question of osteopathic practise has arisen at Ashley, Penn., in connection with the compulsory school vaccination act. Upward of three hundred school children were vaccinated by osteopaths because their charges were less than those of regular practitioners. The School Board holds that as osteopaths have no legal standing their certificates are of no value and as a consequence the children may be refused entrance to school.

Meeting of American Chemical Society.—As this is being written the American Chemical Society is holding its twenty-fifth annual meeting in this city. The Society now has 1,933 members. Among the papers of medical interest are "The Presence of Arsenic in Chemicals and Food-Products and the Efficiency of Several Arsenical Methods," by Lyman F. Kebler; "Aqua Ammonia; Its Impurities and Methods of Analysis," by J. D. Pennock and D. A. Morton; "Improved Forms of Apparatus for Water Analysis," by George E. Thomas and Clarence Hall; "The Sterilization of Water by Peroxide of Chlorine,' by George A. Soper. The address of the President, F. W. Clarke, was on "The Development of Chemistry."

Marine Hospital for Pittsburg.—Congressman Dalzell has introduced a bill appropriating $100,000 for erecting a marine hospital at Pittsburg.

CHICAGO.

St. Luke's Hospital.—The thirty-eighth annual report of this hospital has just been issued and is gratifying to the Board of Trustees, inasmuch as more work has been done in the institution than in former years, and yet expenses have been kept within the income. The number of patients treated was 1,818, and 36.2 per cent. of the cases were taken care of without cost to the patient. The training-school for nurses connected with the hospital is in a flourishing condition.

Improvements.—Many improvements have been made during the year in the hospital and the building is in better condition than ever. William G. Hibbard has built a smoking-room, connected with the Hibbard Surgical Ward. The nurses in their limited hours of spare time gathered material for a fair, which was held on April 18th, in the Nurses' Home. They realized $1,080.00, which they devoted to the current expenses of the hospital.

Finances of the Hospital.—In commenting on the finances, the report contains the following by the Trustees: "The financial statements show the healthy condition of the hospital finances. The total receipts were $100,293.00 and the expenses amounted to $99,899.00, leaving a balance of $394.00 on hand on October 1st. The policy of keeping the expenses within the receipts has been rigidly and successfully adhered to through the year It is undoubtedly the only course to follow, but the Trustees are constantly reminded of the suffering that could be ministered to if the supply of current funds were larger. Every additional dollar received over the present income would enlarge the charitable work."

Statistics of Patients.—The number of patients treated in the hospital during the year is less than last year, but the number of patient days, which represents the amount of work done, is considerably larger. The cost per patient per day has been reduced without injury to the service from $1.85 to $1.80. The in-patient free work amounts to 36.2 per cent. of the whole. In addition must be taken into account a considerable number of patients who are admitted and counted as pay patients, but who are unable to keep up their payments. Again, the accident ward cases are, with few exceptions, treated without charge. The patients treated in the dispensary are wholly free so far as the treatment is concerned. It may therefore be safely estimated that the free work of the hospital is not less than 45 per cent. of the whole.

Lowest Death-Rate on Record.—With the few days remaining to round out the first year of the new century, a total of 23,625 deaths had been recorded up to the close of last week by the Bureau of Vital Statistics of the Chicago City Health Department. At this rate, the total mortality of 1901 will not exceed 24,300, and, figured on the minimum mid-year population as given by the United States Census Office. 1,758,000, the annual rate per one thousand will be about 13.8, the lowest ever recorded for this or any other city of more than one million population. The

lowest previous rate, based on the United States Census figures of population was 14.36 per one thousand in 1897. For the previous ten years, 1890-1900, the average mortality-rate was 17.87, or nearly 22 (21.8) per cent. higher than this probable rate for 1901.

Western Surgical and Gynecological Association.—The eleventh annual meeting of this Association was held at the Great Northern Hotel December 18th and 19th under the presidency of Dr. A. F. Jonas, of Omaha, Nebraska. The meeting was well attended. The papers were of a high order and some of the discussions very animated. The following officers were elected for the ensuing year: President, Dr. James E. Moore, Minneapolis, Minn.; First Vice-President, Dr. J. R. Hollowbush, Rock Island, Ill.; Second Vice-President, Dr. W. W. Grant, Denver, Colorado; Secretary-Treasurer, Dr. George H. Simmons, Chicago, Ill. St. Joseph, Mo., was selected as the place for holding the next annual meeting; time, December 29 and 30, 1902.

Diphtheria Statistics.—Diphtheria has claimed the fewest number of victims in the year just closed of any in nearly a quarter of a century, notwithstanding a four-fold increase of population during the period. Between 1879 and 1900 inclusive there were 19,002 deaths recorded from this disease—a yearly average of 864, with the lowest number 531 (in 1883) and the highest 1,420 (in 1895), in the fall of which year the antitoxin treatment was begun by the Health Department. There will be less than 500 diphtheria deaths this year.

CANADA.

Appointment.—Dr. J. Alexander Hutchinson of Montreal, Chief Surgeon of the Grand Trunk Railway in Canada, has lately been appointed surgeon-in-chief to the Central Vermont Railroad.

Hospital Destroyed.—The general hospital at Mattawa, Ontario, was burnt to the ground on December 17th. There were no fatalities.

Montreal Medico-Chirurgical Society.—The following officers have been elected for the current year: President, Dr. George E. Armstrong; First Vice-President, Dr. H. S. Birkett; Secretary, Dr. Alfred T. Bazin; Treasurer, Dr. Jack; Trustees, Drs. Perrigo, G. A. Brown and F. J. Shepherd.

Quebec Doctors Must Pay Annual Fee.—The College of Physicians and Surgeons of the Province of Quebec recently brought suit against Dr. Auguste Bourbonnais, M.P. for Soulanges, for arrears for annual assessments to the College. The Court has recently given judgment for the plaintiffs, which means that the Quebec doctors must hereafter pay the annual two-dollar assessment levied by the College or cease the practise of their profession.

Toronto University Appointments.—On account of the resignation of Dr. R. R. Bensley and the increasing number of students taking lectures in the medical department, the following appointments have recently been made: Dr. W. H. Piersol, B.A., to be an instructor in biology and histology; Mr. C. M. Fraser, B.A., assistant in zoology; Mr. R. B. Thompson, B.A., class assistant in biology.

Queen's Medical Faculty, Kingston.—The students of the different departments of Queen's University have inaugurated a movement to raise $20,000 to $30,000 for the purpose of a new Convocation Hall; and at a meeting of the medical faculty the scheme received unanimous indorsement and a committee was appointed to raise a medical faculty fund. The medical faculty of Queen's has recently been at great expense in adding to the size and equipment of their building, so this recent action of the faculty will bear heavily upon them, but at the same time speaks well for their liberality.

Smallpox in Ontario.—The present epidemic of smallpox in the Province of Ontario is remarkable for its rapid spread and small death-rate. Since October 1st, there have been 580 cases, occurring in 63 municipalities, with three deaths. At the present time there are 433 cases and of this number the capital has 92 cases.

New Vaccination Order for Quebec.—The Provincial Board of Health of the Province of Quebec has ordered every Municipal Council to avail themselves of the provisions of the "Quebec Public Health Act" within five days, and adopt by-laws to the effect that within two days after such by-laws come into force every person in the Province must establish evidence of successful vaccination within the past seven years or unsuccessful vaccination within six months, and, failing this, unless vaccinated at once, they will be liable to a fine of five dollars with another dollar for each day of delay. Quebec has an extensive outbreak to cope with.

Field Hospital for South Africa.—The Imperial Government has accepted the offer of a field hospital from Canada for service in South Africa. Surgeon Lieut.-Colonel A. N. Worthington of Sherbrooke, Quebec, who has already seen service in the South African campaign, will be in command of the unit and associated with him will be Dr. H. D. Johnson of Charlottetown, P. E. I., as lieutenant, and Dr. Jones of Halifax, N. S., as captain. They will be accompanied by Dr. Roberts and H. E. Tremayne of Toronto.

New Dean at McGill.—The Board of Governors of McGill University have accepted the resignation of Dr. Robert Craik as Dean of the Medical Faculty and appointed Dr. Thomas G. Roddick, M.P., to succeed him. A resolution was adopted asking Dr. Craik to accept a seat on the governing board of the university. The new Dean is professor of surgery at the University.

GENERAL.

Bequest to Hospital.—The Massachusetts General Hospital through the will of Mrs. Susan C. Warren has been enriched by twenty thousand dollars. Other institutions were liberally remembered by Mrs. Warren.

A Royal Hospital.—The palace of Monzo, occupied by King Humbert of Italy at the time of his assassination, is to be converted into an asylum and hospital for children.

Doctors in Politics.—In France, 42 members of the Senate and 53 of the Chamber of Deputies are physicians, making a total of 95 physicians in the French Parliament.

A Christmas Donation.—Mr. William C. Whitney has sent a check for $6,000 to the Nassau County Hospital, located at Mineola, L. I., as a Christmas gift. He gave the hospital a like amount last Christmas.

The Use of Opium in Porto Rico.—Morphine is used extensively in the town of Juana Diaz, Porto Rico. It is estimated by the insular Board of Health that out of the 2,500 inhabitants 1,000 are victims of this terrible habit.

Medical Students in Switzerland.—The number of women students of medicine in Berne is 190; men students, 174. In Geneva 168 women and 183 men are pursuing medical studies.

Spread of the Plague.—The bubonic plague has reappeared in Honolulu and has been discovered in

Smyrna, Asiatic Turkey, while in Brazil and India its prevalence is unabated.

Faith Cure for Smallpox.—In Jersey City a family of ten was discovered less than a week ago in which eight members were suffering from smallpox. The father, although himself a victim, was treating his children by prayer alone. The eldest daughter died before she could be removed to the hospital and the others were found to be in a serious condition. In spite of their helplessness the family resisted the interference of the health officers.

French and Austrian Physicians.—Statistics show a notable decrease in the number of medical students and graduates both in Austria and France. In the former, in 1891, 721 diplomas were conferred by the universities of the Empire; in 1901, but 603. In 1891 there were 5,075 medical students registered; in 1901, 2,555; a diminution of 23 per cent. in the number of physicians; of the students, nearly 50 per cent. France shows a similar falling off. In Paris, in 1897, there were 5,000 medical students registered; in 1901, but 4,000.

Hypnotism for Degeneracy.—Judge Davis, President of the Board of Children's Guardians of Indiana, has given his consent to "Prof." Henry of a Chicago school of hypnotism to experiment with the children in the home maintained by the board. It is Mr. Henry's theory that by hypnotic suggestion he can start a train of thought in the minds of the children for better things. Children who have been taken from vicious parents will be experimented upon. Judge Davis says he does not believe it can do the children harm and possibly will have good results.

The Arabian Practitioner.—The Arabian physician's only claim to intellectual culture is the ability to read and write. He knows the toxic properties of certain plants and curative qualities of others, which he employs indifferently for all maladies. The remedies which he considers most efficient are bits of paper on which are written a verse from the Koran; these are to be swallowed by the patient. In other instances, the paper is carefully rolled and put in a pot to boil. The water is drunk by the patient as hot as can be borne.

Anthropometrical Laboratory.—An anthropometrical laboratory will be offered to the university over which Prof. Paolo Mantegazza presides, upon the occasion of his jubilee. The new laboratory will be open to students and investigators of anthropometry, and will serve for the collection of data concerning variations in the principal characteristics of the human race, morphological and physiological, according to race, sex, age, social position, etc.

Dinner to Dr. Hart.—On December 19th the physicians of Colorado Springs tendered a dinner to Dr. James A. Hart, the occasion being his retirement from active practice. Over thirty medical men gathered at the new Antlers Hotel to evidence the high regard in which Dr. Hart is held by his fellow-townsmen. Dr. S. E. Solly was the genial and witty toastmaster, and toasts were responded to by Dr. Charles A. Powers of Denver, Dr. C. F. Gardiner of Colorado Springs, Dr. C. E. Edson of Denver, and Drs. Gildea, Swan, Campbell and Hutchings of Colorado Springs. Dr. Hart graduated from the College of Physicians and Surgeons of New York in 1874, and after a term in the New York hospitals settled in Colorado Springs where for a quarter of a century he has been one of the leading practitioners.

Hot Bread.—Mrs. Helen W. Atwater has written for the Agricultural Department a bulletin in which she argues that it is not the fact of its being hot which makes hot bread injurious. Hot bread may be injurious just as cold bread may be and the cause is identical in both cases. The advantage on the score of economy only, to say nothing of superiority in actual qualities of nutrition of home-made bread that is the work of a housewife who knows her business, is also presented. Experiments made in different localities show that the average price of baker's bread is more than 100 per cent. above the cost of the raw materials from which it is made.

The Marine-Hospital Service.—A bill has been introduced into Congress by Representative Hepburn to increase the efficiency of the Marine-Hospital Service. Providing for the change of name, it transfers all officers and employees of the old to the new service, with the same rank and pay, except as to the Surgeon-General; this officer is to receive the pay of the Surgeon-General of the army. Commissioned medical officers of the service in charge of administrative divisions in Washington are to rank as Assistant Surgeons-Generals; the relative rank of the other officers of the service is fixed with, but after that of army and naval surgeons. A board is authorized, composed of the Surgeon-General of the army and the navy, the Chief of the Bureau of Animal Industry in the Agricultural Department, and the Director of the Laboratory in that bureau, and five other members not regularly in Government employ, to consult with the Surgeon-General of the "Health Service" on the work of the Hygienic Laboratory; and provision is made for conferences between the Surgeon-General of the "Health Service" and delegates from the various States and Territories on matters relating to the interests of the public health. Uniformity in the registration of vital statistics is aimed at by the bill, which makes it the duty of the Surgeon-General of the newly-named service to prepare proper forms for collecting such figures in conjunction with the State Boards of Health, and to compile and publish them as a part of the reports of the service. The Secretary of the Treasury is to prepare rules for the service, as well as uniforms for its officers and employees, and is to make a yearly report to Congress of the work performed.

Obituary.—Dr. Amos C. Lewis died December 29th at his home at Sedgewick Avenue and Hampden Place in The Bronx. He had been ill five weeks. He was well known as a specialist on skin diseases and was the visiting physician at Fordham Hospital.

Dr. James Burton Snover, one of Pennsylvania University's best-known oarsmen, died December 28th at the University of Pennsylvania Hospital of typhoid fever. He was captain of the 1900 championship crew. He was twenty-five years old.

Dr. John Bell, the highest ranking Knight of Pythias in the world, and one of the best-known physicians in Southwestern Michigan, died yesterday at Benton Harbor, Mich. He was a prominent member of the Masonic fraternity throughout the State, and was elected Major General of the uniform rank, Knights of Pythias, of the World, in 1898. He was once mayor of the City of Benton Harbor, and had been identified with the growth of the city for forty years.

Dr. James M. Wallis died in Philadelphia December 28th in the seventy-seventh year of his age. Born and educated in Philadelphia, Dr. Wallis practised there, was prominent in the medical service during the Civil War, and again resumed practise in that city. He retired from active practise twenty years ago.

Royal honors will be paid to the body of Dr. Allanro Read, the American dentist, who had resided in Copen-

hagen since 1860, and who died December 30th. Dr. Read was a native of Pennsylvania, and occupied much the same position there as did the late Dr. Thomas W. Evans of Philadelphia in Paris. He was patronized by the royal family of Denmark, the royal family of Sweden, the Dowager Empress of Russia, and Queen Alexandra, and enjoyed the friendship of members of various royal families, diplomats, and other notabilities. He declined to accept a title and other honors and retained his American citizenship. Wreaths from the Danish royal family will be deposited on Dr. Read's coffin on the day of the funeral.

A physician believed to have been the oldest member of the medical profession in England recently died at Monkeaton, Northumberland, in the person of Dr. John Warren Edgar. He was born in September, 1803, and had therefore lived to the remarkable age of ninety-eight years, most of which were spent in practice in Kirkby Stephen, Westmoreland. He took his degree in 1828, and continued in practice until a few years ago.

Dr. James Snyder MacKie, littérateur, linguist, financier and physician, died December 30th at his home in Newark, N. J. He had been ill only two days when he was stricken with apoplexy. Dr. MacKie was seventy-seven years old. He was born in Cincinnati, but had lived in Newark most of the time since 1864. He was prominently identified with State Department matters during the administration of President Lincoln. He served with distinction in the civil war, and was a member of the Loyal Legion.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

TRIGEMINAL NEURALGIA—DERMATITIS GANGRENOSA—NORMAL SOLUTION OF SALT IN LONG OPERATIONS—TERTIARY SYPHILITIC LARYNGEAL STENOSIS—ACUTE MILIARY TUBERCULOSIS IN CHILDREN—TUBERCULOUS MENINGITIS—CONGENITAL DILATATION OF THE SIGMOID COLON.

Late in November and during December the following British society proceedings are reported, and in them the best of the papers are the following:

T. H. Morse, at the Clinical Society of London, November 22, 1901, reported two cases of intracranial section of the second and third divisions of the trigeminal nerve for severe neuralgia. In both patients the Hartley-Krause operation was performed. The bone was removed with mallet and chisel and with gouge-cutting forceps. After section of the second and third divisions of the fifth nerve, the foramina ovale and rotundum were blocked with Horsley's wax, for the purpose of preventing reunion of the divided nerves. In both cases cure was obtained. The first was done more than two years ago.

J. Hutchinson, Jr., exhibited four cases in which he had done the same operation. The last was one six weeks old, and was a complete cure. In another case operated on four years ago, the patient had been subjected to several other operations, including division of nerves and lastly removal of Meckel's ganglion. The other three cases had also suffered for many years. In this individual the Gasserian ganglion was removed by Krause's method with success. The last case suffered neuralgia also in the occipital region. Here Krause's operation was done, the ganglion being removed with the lower two branches of the fifth nerve, just behind the ganglion. The occipital neuralgia disappeared, showing that it was a reflected one. In none of these cases had there been any return of the pain. He preferred the temporal operation in preference to all others through the pterygoid region. The advantages of removing only the lower portion of the ganglion were that the cavernous sinus is not interfered with, there is no danger of injuring the oculo-motor nerves, there was no need to tie the meningeal artery, and there was no post-operative anesthesia of the cornea. On this last point the author stated that strict antisepsis and sewing up the eye-lids immediately after the operation prevented it. He quoted a case in which by accident the ophthalmic branch of the fifth nerve had been divided, which was followed by corneal anesthesia and later by ulceration, and finally by destruction and removal of the eye. The last advantage of the temporal operation is that neuralgia, as a rule, does not occur in the ophthalmic branch of the fifth nerve, and hence this route aids in avoiding it. A large flap is not necessary. In one case he tied the external carotid artery for hemorrhage. The position of sitting erect in a chair is the best, although the anesthetists might say to the contrary. A curette will enable one to remove part of the ganglion, but not cleanly. The mortality in Great Britain for this operation is not over 10 per cent. His own record is five without a death. Doyen's method of operating, which entails an unnecessarily extensive operation, he condemned. The major operation should not be postponed too long, and should always be done whenever the superior maxillary branch of the nerve is involved.

Dr. Finny, at the Royal Academy of Medicine in Ireland, November 15, 1901, read notes of a case of dermatitis gangrenosa, which occurred in a child two years and nine months old. It died five days after admission to the hospital. Its condition when brought to the institution was extreme prostration, with circular, punched out sores varying in size from one-half to two inches in diameter more or less, covered with a yellow, green, pultaceous scab, and distributed widely over his back, thighs, genitals, hands, face, scalp, ears, forehead, and eyelids. After poulticing with boracic acid, the ulcers were clean, smooth and sharply defined at the edge, and of a deep, raw meat color. No bullæ were visible anywhere, nor any sign of varicella. Vaccination had been performed two and again half a year before. There was no history of syphilis nor of exposure to any contagion. There had been no chickenpox in Dublin or Ireland except remote from that city. At the autopsy, examination revealed caseating tuberculosis of the thymus gland, lungs, bronchial and mesenteric glands. Before admission the child had been under the care of a competent physician, who noted that the disease was a case of impetigo, which was rapidly going on to gangrene. The eyes were in a state of panophthalmitis. It seemed to be a well-marked example of what Stokes in 1807 described as "eating hives," "white blisters" and "pemphigus gangrenosus." Later Hutchinson in 1879 calls, what appears to be the same disease, "varicella or varaccinia gangrenosa." Dr. Finny, however, preferred the comprehensive title of dermatitis gangrenosa, which Croker had given it. The cause of the disease he considered some special microbic infection attacking children suffering from some pustular disease.

Dr. Macnaughton-Jones, at the British Gynecological Society, November 14, 1901, read a paper on the use of artificial serum in prolonged operations. His illustrative case was a woman, forty years old, curetted and relieved of a polypus some time before the operation. She had had pelvic pain for over seventeen years, since the birth of her last child. Before the operation she suffered from intense pain, frequent fainting and threatened collapse. At the operation the inlet of the pelvis was found to be completely closed by a smooth, firm, plastic bed, which completely hid

the adnexa. On breaking this down, the latter were found to be converted into thickened adherent and enlarged tubes with old pus sacs and the ovaries into enlarged cystic masses, with purulent infiltrations Removal of all was extremely difficult. One of the pus sacs ruptured and a large drain was left in and removed on the fourth day. Recovery was uneventful. The case, with another which he had recently shown the society, well illustrated the danger of temporizing with such extreme disease of the adnexa. Such a hesitating policy finally necessitated the performance of an operation far more difficult and prolonged than any ordinary hysterectomy. In this particular case if it had not been for the free use of normal salt solution the patient would have died. The work, even with rapid operating, lasted nearly two hours.

W. G. SPENCER, at the Laryngological Society of London, November 1, 1901, showed a patient suffering from tertiary syphilitic laryngeal stenosis. This was treated by laryngo-fissure without a tracheotomy. The result of it all was a most satisfactory cure. There was no dyspnea and the patient had an audible voice.

S. STEVENSON, at the Society for the Study of Diseases in Children, November 15, 1901, exhibited a child seventeen months of age suffering from acute miliary tuberculosis, with both pulmonary and cerebral manifestations. Double optic pupillitis existed and a typical tubercle was present in the choroid coat of the right eye. There was also in addition a tuberculous ulcer involving the conjunctiva of one lid. Scrapings from this ulcer were rich in tubercle bacilli. The free edge of one eyelid had also been destroyed.

E. CAUTLEY read a paper on the etiology and pathology of tuberculous meningitis in children, based upon the best postmortem and clinical findings in the last twenty-seven fatal cases under his care. Twenty-two were children under five years of age and only five were between that age and ten years. Family predisposition existed in five cases. In only two was the disease limited to the membranes of the brain and spinal cord. In twenty-three the glands of the mediastinum were cheesy and in four the mesenteric glands were also cheesy. His views were summed up briefly as follows: So-called heredity means exposure to infection. Injury is rarely an exciting or a predisposing cause. The respiratory tract is the great channel of infection. The alimentary tract is rarely primarily affected. Tuberculous milk is rarely if ever the source of infection. The outlook for life is always hopeless on account of the extent of the tuberculous disease elsewhere in the body. The evidence obtained from the examination of the brain after death shows that all operative treatment should be discarded as dangerous.

C. N. GWYNNE, at the Sheffield Medico-Chirurgical Society, November 7, 1901, showed a case of congenital dilatation of the sigmoid colon. The boy was sixteen years old, obstinately constipated since birth, with later in life, chronic enlargement of the abdomen, up to thirty-one inches in circumference at the navel before admission. No action of the bowels could be obtained, and an iliac colotomy was commenced. After the operation the boy improved in general health and his abdomen reduced to almost normal proportions.

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held November 23, 1901.

The President, Howard Lilienthal, M.D., in the Chair.

Needless Laparotomy.—Dr. John C. Munro of Boston read the paper of the evening, in which he said that it is an important thing for medical men occasionally to pass their sins through a clearing house, in order properly to strike a balance of advance in medicine and progress in diagnosis. As for himself he was ready to confess to certain needless abdominal sections, needless in a sense that at the operation no properly surgical lesion was discovered, although beforehand the diagnosis of some grave surgical lesion was made. In his cases there are no abdominal sections for pneumonia presenting abdominal symptoms, although on more than one occasion such patients have been sent to him for operation by medical men, and no laparotomies in cases in which appendicitis and typhoid fever were confounded because of the similarity of symptoms. Dr. Munro detailed some eight instructive cases.

Acute Phosphorus-Poisoning.—The first case was of a delirious patient who was brought in the hospital ambulance. The only history obtainable was that she had taken some oil to produce abortion. The condition present seemed to be sepsis in the abdomen. There was pain and tenderness with distention of the abdomen, a condition of jaundice and, according to the report, there had been no stools for several days. On opening the abdomen the usual acute fatty degeneration of all the organs was found.

Hypertrophic Cirrhosis.—The patient was a man of thirty-two years admitted to the hospital in a very weak condition. He had seven or eight loose stools daily for a week and suffered from considerable loss of weight. While there was some jaundice the stools were alternately light and dark, the change taking place seemingly without any good reason. The edge of the liver was found to be as low as the navel and the presence of some biliary condition was suspected. At operation a regular, smooth enlargement of the liver was found, evidently due to hypertrophic cirrhosis. The patient recovered from the operation without incident, his jaundice became markedly less and his general condition improved.

Acute Nephritis.—The patient was a widow who was referred to Dr. Munro for operation for appendicitis. At first she had complained of pain on the left side which afterward shifted to the right side. It seemed to be localized in the lower part of the region of the kidney and there was marked tenderness on this right side. The general condition was very bad and some acute inflammatory process was thought to exist. In the urine pus, albumin and casts were found, but the condition was considered not to be primarily nephritic. At operation nothing was found to account for the symptoms and the conclusion was that they were due to the acute nephritis. The patient's general condition seemed to improve somewhat immediately following the operation, but after some time her disease progressed and she died three weeks after operation.

Nephritis Simulating Appendicitis—In a fourth case the patient had suffered for several years with a tendency to more or less colicky pains in the abdomen. There had been several distinct recurrences of acute exacerbations of some intra-abdominal condition that caused severe pain. Slight edema of the lids had been noticed, but no edema anywhere else in the body. There was localization of the pain in the right iliac region. Marked leucocytosis was present during the last attack and there was general abdominal tenderness with fulness over the right kidney. The patient was evidently losing ground and required prompt treatment if her condition were considered to be of a surgical nature. Under ether narcosis an incision was made on the right side of the abdomen, but absolutely no pathological condition was found in the liver or in the biliary tract and no signs of any inflammatory condition in the neighborhood of the appendix. Convalescence after the operation was very satisfactory. The general

symptoms improved and three weeks later the patient was better than she had been in several years.. After the operation the only diagnosis that seemed possible was simple acute nephritis with marked tendencies to relapse. This would account for the localization of the symptoms. Though they are unusual, such painful conditions are sometimes met with in simple nephritis.

Delirium Tremens.—The patient shortly before his admittance to the hospital had been on a drinking bout. A chronic renal condition was known to be present and the urine showed signs of it. On admittance to the hospital the principal symptoms in the case were of an acute abdominal nature. There was some suspicion of a pancreatic surgical condition, and as the symptoms were very severe and seemed to demand immediate interference, the abdomen was opened but no pathological condition discovered. There was a hardening of the pancreas that seemed suspicious and a specimen was removed for examination, but it proved negative.

Morphine Habit.—The patient, a woman of questionable character, while under the influence of liquor, fell into the hold of a vessel in the harbor. The symptoms presented were those of some acute abdominal condition and, as the fall had been a serious one, the suspicion was aroused that a rupture of the kidney might have taken place. The abdomen was opened but absolutely nothing traumatic was found. After the operation, it was discovered that the patient, besides being alcoholic, had the morphine habit. By withdrawing the drug almost any train of symptoms could be induced. The patient recovered without incident.

Obesity.—The patient was a man who previously had lost considerable in weight and then began to gain very markedly in size and in avoirdupois. Just before his increase in weight occurred, an indefinite tumor in the right kidney region had been noticed, which was tender to palpation and caused considerable discomfort on movement. Jarring motions particularly were felt severely in the right side. Once obesity set in a steady increase in size occurred, the circumference of the abdomn increasing an inch per day. It was concluded that some kidney trouble must be present and that the remarkable increase of the abdomen was due to ascites. At the operation nothing was found except an immense amount of fat in the omentum. This was of a very soft character, lacking even the usual consistence of abdominal fat. It gave a modified wave when the abdomen was tapped with the fingers. After the operation the patient's subjective symptoms were relieved for a time. The tendency to increase in weight also ceased for some time, though it recurred afterward, and Dr. Munro learned that obesity was a prominent characteristic of the family history. A brother and sister of the patient each weighed over 450 pounds.

Supposed Pancreatitis.—The patient was a woman who had been dragged over the dashboard of a wagon and kicked by a horse which was running away as a result of a defect in the road over which she was driving. At the time of the accident she vomited some blood. Nearly a year after the accident she began to vomit daily, though usually the vomit was composed of bitter material, seldom food, and never blood. This vomiting took place usually in the afternoon, but did not occur at night. There was no jaundice, but the patient's appetite was capricious and she had lost thirty pounds in weight; the stomach was not dilated. As she had already recovered damages from the town in which the accident had occurred, the traumatic neurosis symptoms, usually so persistent until damages are awarded, could be practically excluded. In the epigastrium there was tenderness and marked rigidity. Only very slight rigidity remained, however, under ether narcosis. An exploratory laparotomy was advised. It was thought that a tumor could be felt in the epigastrium and the most probable diagnosis seemed to be a traumatic pancreatitis with subsequent inflammatory changes. After the abdominal incision was made it was found that the supposed tumor was due to an absolutely normal pancreas lying over a rheumatic spinal column which was very prominently arched forward. The symptoms in the case were evidently hysterical manifestations. Recovery from the operation was rapid and complete. The laparotomy was not a useless one as far as its therapeutic effect was concerned. The patient's symptoms were relieved at once and have not recurred since. The vomiting has ceased, her appetite has improved, she has regained the weight lost and her general condition is such that she considers herself cured.

Hypertrophic Hepatic Cirrhosis.—In opening the discussion Dr. Potter said that he had seen one case of hypertrophic cirrhosis operated upon under the false impression that the symptoms produced were due to some intra-abdominal inflammatory condition. The fever that occurs during the course of hypertrophic cirrhosis is very apt to lead to the commission of such a mistake. Hypertrophic cirrhosis is, however, much rarer in women than in men. Dr. Munro's case is therefore all the more interesting for this reason. The diagnostic error is comparatively easy to make and now that it is more than formerly the custom to operate on biliary conditions it is probable that a number of useless operations will be performed on patients suffering from this condition.

Syphilitic Liver.—Dr. Brewer said that he had seen needless laparotomies in certain of the classes of cases mentioned by Dr. Munro and had himself twice operated on patients who proved to be suffering with syphilis of the liver. The symptoms produced by hepatic syphilis in the tertiary stage may be absolutely identical with those produced by surgical diseases of the gall-bladder. There may be biliary duct occlusion, with pain and subsequent jaundice. In one of the cases all the symptoms were perfectly pathognomonic of gallstones. The condition proved to be a large gumma of the liver. This had broken down, however, and drainage was absolutely needed so that the operation could not be pronounced useless.

Needless Operations for Gastric Conditions.—In two patients referred to Dr. Brewer the symptoms seemed to be surely those of cancer of the stomach. One of them proved later to be atrophic gastritis. The other operated upon proved absolutely negative as far as any surgical condition of the stomach could be found and to this day it is not quite clear what was the cause of the severe stomach symptoms. Operations for gastric cancer in which the opening of the abdomen has given absolutely negative results are not infrequent.

Obesity and Ovarian Cysts.—In one patient an enormous tumor developed that seemed to rise out of the pelvis. By palpation fluctuation could apparently be obtained. The diagnosis was an immense ovarian cyst. On operation, however, it was found that there was enormous distention of the abdomen by a fatty growth in the omentum. It was impossible to raise the omentum and it had to be cut through. Altogether the distance was eighteen inches. The fat lacked the consistency of normal fat. Beneath this huge omentum no pathological condition of the abdominal or pelvic organs could be found.

Pneumonia and General Sepsis.—Some years ago Dr. Brewer saw a patient who had suffered from pneumonia in which the crisis had come on the sixth day. The temperature had been normal for nearly a week, when acute abdominal pains developed with a tempera-

ture of 102° F. and a pulse of 100. There was a history of four or five previous attacks and there was localized tenderness in the region of the appendix. The next day the abdomen was rigid and the pulse and temperature had both risen. It seemed certain that the patient was suffering from appendicitis and two consultants who were called agreed with this diagnosis. The patient was considerably run down as the result of the pneumonia, however, and the fulminant character of the apparent appendicitis had still further sapped his strength so that operation seemed hopeless. There was great distention of the abdomen and there seemed to have been a perforation in the appendix. After death it was found that there was no intra-abdominal lesion. The patient's condition was due entirely to a pneumococcus septicemia with tympanites from distention of the intestine because of peristaltic paralysis. Dr. Brewer has seen three or four of these cases in which general sepsis simulated very closely intra-abdominal conditions.

Pernicious Anemia.—Dr. William B. Coley said that he had seen one case operated upon in which all the classic symptoms of cancer of the stomach seemed to be present. The patient had lost some forty pounds in weight and seemed to be utterly unable to retain anything on his stomach. The symptoms of gastric carcinoma seemed so clear that no blood-examination was made. After laparotomy no pathological condition of the stomach could be found. The case proved to be one of pernicious anemia.

Multiple Hepatic Abscess.—Dr. Fiske reported a case in which the history was that of a servant admitted to the hospital with a temperature of 104° F. and a rapid pulse. She had slipped and fallen across a railing. She was pregnant at the time and an abortion resulted. There was no tenderness over the abdomen, but the uterus was cleaned out on general principles, and this was followed by a drop in the temperature that seemed to confirm the suspicion of intra-uterine sapremia. The second day afterward, however, her temperature went up again and nothing could be found to account for her condition. She continued to suffer for several days and then died. At the autopsy a number of abscesses of the liver were found. One of these was of the size of a hen's egg, a number of them were as large as marbles, while some were only minute points of pus. None of the symptoms during the course of the case pointed to any involvement of the liver. There was no tenderness of the abdomen at any time.

Gastric Crisis.—Dr. Morris Manges reported some cases in which he had seen or knew of operations being performed for supposed abdominal conditions when the real etiological factor in the case was tabes and when the symptoms were gastric or intestinal crises of the disease. Two liver cases that he has seen operated on proved to be due to syphilitic cirrhosis. One of them simulated cholelithiasis very closely. Atrophic cirrhosis of the liver sometimes simulates very closely cancer of the liver, especially when the nodules of the surface of the liver are large.

Hypertrophic Cirrhosis.—Dr. Manges has seen two cases of hypertrophic cirrhosis operated on with the idea that a surgical condition existed. In one case the diagnosis was cholelithiasis. In the other it was considered that a neoplasm was present and there was suspicion that it might be an operable carcinoma of the pylorus. It is important to differentiate cirrhosis of the hypertrophic variety from other affections in the epigastric and right hypochondriac regions. Thus far insufficient attention has been paid to this serious problem. While it is usually insisted by surgeons that exploratory laparotomy involves very little risk, Dr. Manges has come to consider this kind of operation as the most serious for his patient. When the laparotomy is undertaken without assurance of the condition that is to be found the patient is always in grave danger.

Hysteria and Abdominal Conditions.—Dr. Henry C. Coe said that if gynecologists were as frank as their surgical brethren there would be more needless laparotomies to confess to. Hysteria particularly is apt to induce sets of symptoms that simulate very closely abdominal conditions for which not a few abdominal operations have been done. Ectopic gestation often gives very dubious symptoms yet there is no doubt of the advisability of operation on even very slight grounds. Gumma of the liver simulates pyloric carcinoma very completely at times. Twice in Dr. Coe's experience a lipoma of the omentum has been diagnosed as cyst of the ovary. The surgeon's only protection against hysterical simulation of abdominal surgical conditions is to keep the patient under observation for a considerable period.

Apparent Echinococcus.—Dr. Foote reported a case in which the patient had been operated upon for echinococcus of the liver. Two years later failing health again called attention to the condition. The liver was found enlarged, but there was no ascites. There was a slight febrile temperature. It was concluded that the echinococcus cysts were recurring. On operation some hypertrophic cirrhosis of the liver was found but absolutely no echinococcus. A needle was passed into the liver in various directions, but no pus came. The patient was very much improved by the operation and gained in health and strength with a relief of symptoms.

In closing the discussion, Dr. Munro said that in one of his cases of operation for gumma of the liver he had found the gummatous tissue in a necrotic condition and had instituted drainage. This, of course, is not an operation to be regretted. Dr. Munro finds he must be most careful of cases of pneumonia which give abdominal symptoms. In all patients pneumonia must be ruled out. Dr. Munro has found the X-rays very useful for this purpose. In cases of appendicitis nephritis must be excluded. He considers multiple abscess of the liver much more common than has been thought.

Danger of Uterine Tamponade.—Dr. Coe detailed his recent experience with a case that pointed out to him a hitherto almost unsuspected danger from tamponing the lower segment of the uterus to induce labor. The patient was a woman in wretched health, a multipara, for whom it seemed desirable to bring on premature labor. She was given a few whiffs of chloroform and about two yards of gauze were packed into the lower segment of the uterus. At the time of the tamponade it was noted that the placental bruit was loud. It was concluded that there was a low implantation of the placenta. A couple of hours later there was a sudden gush of blood. Most of the gauze was removed and the hemorrhage ceased somewhat; though the patient did not suffer from ordinary labor pains, there were contractions and cramp-like pains that were more distressing. The fetal heart sounds were distinct. After a time the hemorrhage recommenced and continued so that there was an anticipation of premature separation of the placenta. Dr. Coe summoned assistance and made a rapid delivery with the high forceps. There was considerable bleeding, at least twenty ounces of blood being lost. It was found that the placenta had been detached over one-half its area and that this was undoubtedly the cause of the bleeding. After the delivery examination of the uterus showed the presence of a sessile intra-uterine fibroid. The course of the case since delivery has been normal. The child is perfectly well. It seems certain that the insertion of the gauze into the uterus was the occasion

for the detachment of the placenta. Either the placenta was directly pushed away from the uterine wall by the gauze, or at least so much pressure was made upon its lower edge that the first contraction of the uterus caused its detachment. If delivery had been delayed in this case there seems no doubt that both lives would have been lost. The insertion of the gauze is usually considered the simplest and safest method of inducing labor. This case shows one of its dangers and indicates the necessity for determining if possible whether there is a low implantation of the placenta at the time of tamponing.

Practical Questions.—In answer to a question Dr. Coe said that he knows no way of guarding against this accident with any assurance. It must be remembered that detachment of the placenta without dilatation of the cervix is a rather fatal complication. The first sign of the occurrence of such a complication must be the signal for interference. If, in such a case, the use of high forceps proves impossible, then the indication would be to open the abdomen, especially if the patient were in a hospital. In private practice, of course, Cæsarian section is almost impossible without great preparation.

Intra-Abdominal Hemorrhage.—Dr. Brewer gave the details of an accident treated in his service at Roosevelt Hospital. The patient was an Italian and was thrown down by a wagon, though it is not known whether he was run over. When he came into the hospital he had a black eye and there was some subconjunctival hemorrhage. He gave evidence of great shock, due seemingly to his head injury. Twelve hours later the patient had an extremely weak pulse, was pale and anxious looking, and had distinct abdominal rigidity and tenderness over all the abdominal surface, though there were no bruises of the abdominal wall. Both flanks were very flat, the whole picture being that of a large intra-abdominal hemorrhage. His abdomen was opened and a large rupture of the spleen was found, almost completely separating that organ into two parts. The patient was in such a low state that nothing could be done except to pack the slit in the spleen by means of gauze which was conducted out of the abdomen through an incision in the posterior wall made for purposes of drainage. The patient was infused with 3,000 c.c. of salt solution and, after complete evisceration, the abdomen was thoroughly wiped dry. The patient began to improve at once; he looked brighter, there was no temperature and his heart improved very much. On the fourth day there was an unexpected rise of temperature to 102° F.; on the fifth day it was half a degree higher and the pulse was 110. On the sixth day the temperature rose still higher. There was no rigidity, no distention of the abdomen, no tenderness, but on the seventh day the pulse was 160 and the temperature nearly 106° F. There were lung complications, no head symptoms, no leucocytosis and the case seemed a mystery.

Suggestions as to Etiology.—Dr. Foote said that the case would probably prove to be one of some form of intestinal septicemia. At autopsy injection of the intestines would be found, if not adhesions. There would be an intense peritoneal sepsis, though without the usual acute symptoms. Dr. Coley said that in such cases, especially after gunshot wounds, some form of abdominal sepsis was usually found. The local symptoms were very slight and commonly only a little bloody fluid was found in the abdominal cavity. The septic condition of the abdomen, however, was sufficient to cause the severe systemic symptoms, though without the localizing symptoms. Dr. Fiske said that in such a case he would be apt to suspect the existence of a subphrenic abscess. The absence of leucocytosis does not of itself negative the possible existence of a serious septic or purulent condition. There was no leucocytosis in President McKinley's case and yet a serious pathological condition had developed.

Dr. Howard Lilienthal said that the subconjunctival ecchymosis suggested the possibility of head injury. While the special senses seem not to be affected, a study of the eye-ground might have given some information as to cerebral injury. In some of these obscure cases undoubtedly the serious lesion was intra-cranial.

Symptomless Septic Conditions.—In closing the discussion Dr. Brewer said that undoubtedly the condition seemed to him to point to abdominal sepsis. Against this conclusion, however, were the following facts: The gauze packing when removed from the abdomen was very properly sweet; there was never any induration to be found on palpation; there was absolutely no rigidity of the abdominal muscles; it was very noticeable on examination, even with the temperature at 106° F., that the abdomen was hollow and was not distended to the slightest degree. By exclusion of other complications, however, one can think only of peritoneal sepsis. With regard to the question of head injury there was no discharge of blood from the ear, nose, or mouth, so that there was nothing to point to the possibility of fracture of the base with subsequent infection of the meninges through these channels.

CLINICAL SOCIETY OF THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL.

Stated Meeting, Held November 4, 1901.

J. A. Bodine, M.D., in the Chair.

Infantile Acromegaly.—Dr. Charles G. Kerley presented three patients. The first, a case of infant acromegaly, nine months old, presented marked hypertrophic growth of the right leg. At birth the first and second toes of the right foot were considerably enlarged, and the foot was from one-fourth to one-half inch longer than the other. The hypertrophic growth of the bone as well as of the soft parts has increased steadily since birth. The right leg is one inch longer than the left. The hands also appear to be larger than might be considered proportionate. Very few such cases have been described. Klebs has described them as cases of infant acromgaly. Furnival has reported 34 cases of adult acromegaly which came to autopsy, and in all those they found either hyperplasia or cystic degeneration of the pituitary gland.

Congenital Heart Lesion.—The second patient, a girl nine months old, presented this condition. She suffers no discomfort whatever. The only sign of the lesion is the loud and blowing murmur with its great area of diffusion, it being very loud over the entire thorax front and back.

The third case presented the clinical picture of a congenital heart lesion which represents fairly well the condition usually present in older children. There is cyanosis indicated by the blue lips and the congested appearance of the face. There is marked clubbing of the fingers and toes. Upon slight exertion the child becomes indigo blue. She has occasional attacks of severe pain in the cardiac region, followed by a short period of unconsciousness. The murmur is loudest over the base; it can be heard distinctly all over the anterior portion of the chest and faintly behind. There is hypertrophy of the right heart, the line of absolute dulness extending to the right mammary line.

The chief points of interest in connection with congenital cardiac affections in children rest in the differential diagnosis from the acquired forms of heart disease. Children under two years of age very rarely

have acquired heart lesions, for the reason that rheumatism at this period of life is extremely rare. The age, therefore, is of some assistance in differentiation. The nature of the murmur is significant. It is loud, harsh in character, with a wide area of diffusion. This with the cyanosis, clubbing of the fingers, etc., renders the diagnosis fairly easy. Anemic murmurs sometimes have to be considered in this connection. The anemic murmur is soft, rather musical in character and heard over a comparatively small area, accompanied by a venous hum in the vessels of the neck. Autopsies show the most frequent congenital lesions to be stenosis of the pulmonary artery, with an open foramen ovale or an opening into the intraventricular septum.

Dr. Baron asked how long the heart might continue to compensate itself and the child not show other characteristic signs of a child with congenital heart lesion.

Dr. Kerley replied that this would be a hard question to answer in the absence of positive knowledge as to the nature of the lesion. In the older child the cyanosis indicates without any doubt an opening either in the intraventricular septum or a patent foramen ovale.

Dr. Katzenbach had seen cases in which there was fenestration of the valve, but no other symptoms.

Dr. Wyeth said the first case Dr. Kerley presented—that of acromegaly or hypertrophy of the right lower extremity—suggested some surgical consideration, in order to protect the child in its further development from deformities of the spine due to one extremity being shorter than the other, and suggested that in such cases the shorter side be elevated so that when the child walks it will develop the left side as well as the right. The growth of the bones will come when the child is fully developed. When that condition of hypertrophy shall have ceased it will be perfectly justifiable to cut that leg down by resection of the bone of the femur to the levl of the opposite side, and subsequently the femur and tibia, bringing the extremities to about the same length.

Dr. Townsend had operated on similar cases. It is more common to find the hypertrophy in the lower than in the upper extremity; in fact he could only recall one case where the disease was located in the upper extremity. Four or five years ago he operated on a young woman who had enlargement of two toes. The second toe was four inches longer than the great toe. Removal of the enlarged toes left the foot in good shape and enabled the patient to wear two shoes of the same size, whereas, prior to operation she had worn one shoe five or six sizes larger than the other in order to accommodate the hypertrophied toe. Dr. Townsend thought there would be a difference of opinion as to the advisability of surgical interference as suggested by Dr. Wyeth. If the child grows well and healthy, it is probable that the disease may be self-limiting or, in a measure, self curative, and therefore it would be questionable to do an excision.

Ossifying Periostitis.—Dr. Townsend read a paper on this subject and presented a patient from whom he had removed a bony tumor, 9x4x2 cm., from the front of the thigh, just above the knee, which, on examination, proved to be an exostosis. It was due to a blow received two months prior to the operation. Before its removal the patient was unable to flex his knee more than 30°, owing to the restriction due to the bony mass in the lower end of the quadriceps extensor femoris. Recovery was uneventful and the result perfect. He can use his knee as well as before he was hurt. The report of this case will appear in full in the MEDICAL NEWS.

Myofibroma of the Fallopian Tube.—Dr. J. Riddle Goffe discussed this subject and presented a specimen. He said that fibroids may arise in all tissue that has fibrous or muscular elements, but their appearance in the uterus is more familiar, although they are found in all parts of the body. Their origin, of course, is still obscure. If they originated in the muscles of the blood-vessels there is no reason why we should not have fibroid tumors in every part of the body where blood-vessels retain their muscular coats. This is the first case he had seen of a fibroid tumor of the Fallopian tube. The literature on this subject shows that Jacobs of Brussels reported a case in 1898. Dr. A. Palmer Dudley has seen one case since Jacobs' report These are the only cases that Dr. Goffe has found. The growth in this case is situated three-quarters of an inch from the horn of the uterus in the tube on left side; it has no connection with the uterus; it perfectly surrounds the lumen of the tube, so that a fine straw passed through the Fallopian tube passed completely through the diameter of the tumor. It is about three-quarters of an inch in diameter, and has been badly cut to pieces by the pathologist. He was very anxious to make sure that there was no mistake about his diagnosis and took sections in all directions. The history of the case is as follows: The patient, a young woman, nineteen years of age, had been a chronic invalid for four years, had not been out of the house for three years, and was incapacitated from pain and dysmenorrhea. Finally, she became disturbed mentally. She developed very marked mental symptoms and was on the high road to the insane asylum when she came under treatment last March. She had a retroflexed uterus with an enlarged ovary and a fibroid tumor near the horn of the uterus. The mental condition, he believed, could be relieved by change of scene, and he told her positively that she could be cured and thus made a marked impression on her mind. Her home was 500 miles away and her parents were loth to have her come to New York for treatment, but finally consented, and an operation for the relief of the retroflexed uterus was performed. The operation was done through the anterior fornix of the vagina; and on delivering the uterus into the vagina the disease of the left tube was found. The patient finally recovered.

Dr. Jeffries stated that this was the first case he had seen since his connection with the Polyclinic laboratory, extending over a period of from twelve to fourteen years, or with the laboratory of Bellevue Medical College.

Deciduoma Malignum.—Dr. Ladinski reported this case. H. G., born in Austria, aged nineteen years; family history negative; previous history good. Married one and a half years; has had one child, ten months ago, which she nursed for eight months. Menstruated in April and May; no menstruation in June. About the middle of July she began to have pains in the lower part of the abdomen; was examined in the dispensary, where she was told that she was pregnant. About the end of July she had some uterine hemorrhage and later about a quart of clear fluid tinged with blood escaped. Felt well until about a week later, when she was again seized with uterine hemorrhage at night and was tamponed by a physician. Dr. Louis Friedman was called in the morning, when he found her bleeding severely; he removed a large clot of blood from the vagina. The patient had very severe labor pains, the os was dilated about two fingers and he found the uterus to be as large as a six months' pregnancy. He removed half a pailful of the cysts of a hydatidiform mole. On being emptied the uterus contracted and the bleeding was partly checked. The patient was sent to Gouverneur Hospital for further treatment. On admission to the hospital, August 7, 1901, examination showed the uterus to be large and

soft, os dilated and bleeding from cavity. Temperature 100° F.; pulse 120; respiration 32. On that same day, under ether, Dr. Bradner, the house surgeon, curetted her, bringing out a few small cysts with some shreds. The uterus was then irrigated with saline solution and packed. The patient was returned to the ward in good condition. She did well and was discharged August 23, 1901. She returned September 5, 1901, complaining of pain over the uterus; upon examination the uterus was found to be enlarged and very soft, and bleeding slightly. She was put on tonics, ergot and douches, and an ice-bag was applied over the uterus. As the bleeding, though very slight, continued, Dr. Bradner again curetted the uterus on September 10, 1901. There was very little to remove. The uterus was then irrigated and packed and the patient returned to the ward in good condition. She was given ergot, ½ dram, q. 4 h., strychnine gr. 1/30, t.i.d., and a hot bichloride douche, b.i.d. This reduced the size of the uterus somewhat, but the flabbiness still continued. She looked anemic and all her tissues were flabby; but under the administration of iron she improved and was discharged September 29, 1901.

During the night of October 3d she was again seized with a severe uterine hemorrhage and Dr. Friedman was hurriedly called. He tamponed her and sent her to Gouverneur Hospital. The patient was examined for the first time on the morning of October 4th. Heart and chest were normal; she was very anemic; all the muscles were flabby and the skin slightly edematous. Bimanual examination revealed an ovarian cystoma about the size of a cocoanut on either side. The uterus was in the normal position, but considerably enlarged. Its walls, as well as that of the cervix, were very much thickened, soft and congested. The os was patulous and there was a moderate amount of hemorrhage from the uterine cavity. The consistency of the uterus was neither the soft feel of subinvolution, nor the elastic resistance obtained in incomplete abortion. It was rather that of a chronic hyperplasia. On the posterior wall, near the left border and close to the cornu was a small elevated nodule about the size of a ten-cent piece. It was so intimately connected with the endometrium and the uterine wall that it appeared to be a slight projection of the uterine muscle. It could not be separated or lifted up from the endometrium with the finger-nail, as is the case with adherent placenta. It was soft, friable, spongy, and bled freely on touch. On manipulation the finger broke easily through its apex and penetrated the uterine wall, which at that point was soft and friable, almost to the peritoneal surface. The history of the patient and the general condition was certainly very suspicious; but the presence of the nodule made the diagnosis of deciduoma malignum absolute. The only other conditions to be considered were an adherent portion of placenta and a partial perforation of the uterine wall, made at one of the previous curettings. In that case both the base and the edges of the uterine wound would consist of normal uterine tissue. The next day, under ether anesthesia, in the presence of Drs. Huber and J. Rogers, abdominal hysterectomy was performed. The patient made an uneventful recovery.

The histology and pathology of deciduoma malignum is still a subject for discussion and controversy among pathologists. Some consider it as belonging to the sarcomata, others to the carcinomata; a few writers maintain that it is of maternal origin, while the majority hold that it is of fetal origin.

The clinical features which should invariably establish the diagnosis are as follows: (1) The history of recent parturition or abortion, especially the discharge of a hydatid mole; (2) profuse hemorrhages occurring at irregular intervals, especially if recurring in spite of repeated curettages; (3) anemia, rapid loss of flesh and strength; (4) persistently large and soft uterus and cervix; (5) pain in pelvis; (6) these symptoms call for a digital exploration of the uterine cavity, and when the characteristic nodule is discovered the diagnosis is established beyond a doubt; (7) metastasis occurs very soon after the appearance of the primary focus.

The microscope will only corroborate the diagnosis; it may even fail to make the diagnosis in the early stage when it can be made by digital exploration. Curettage when the nodule is small may only bring away blood clots and shreds which show nothing characteristic.

Dr. Jeffries said that he was surprised when Dr. Ladinski came in with the specimen and said that he had a case of deciduoma malignum and wanted to have a section of it. He expected when pathological specimens were brought to the laboratory to be asked what they were, and when he presented a specimen of the rarity of this one, and had made his diagnosis before the operation he thought he had done a little more than usual. The number of cases that have been described is very limited. The first described was in the fifties. At Johns Hopkins there is a small list collected by Dr. Williams. Are they of fetal or maternal origin? The consensus of opinion is that they are derived from the syncytium, and it is not known whether the synctium belongs to the embryo or the maternal tissues.

Initial Lesion of Tongue.—Dr. D. A. Sinclair showed a patient with an initial lesion which is not very rare but sufficiently so to be of value to those who are interested in genito-urinary diseases. He came for examination about two weeks ago complaining of a soreness in his mouth and upon examination it was evident he had an initial lesion of the tongue. It happens about once in a hundred times. This is sometimes mistaken for epithelioma, but the age of the patient and the presence of secondary symptoms confirm the diagnosis.

Regeneration of Radius.—Dr. Bodine presented a case of regeneration of the radius following its removal from the wrist to the elbow following a Colles' fracture. The child, a little street Arab, was in perfect health, when he broke his arm. He went to a dispensary and the arm was put up and a dressing covering the entire hand was applied. Between his fingers there were particles of dirt and fermentation occurred between the fingers. On account of the pain and fever his mother brought him to the Northwestern Dispensary. There were two lines of lymphangitis up the back of the arm in which sixteen different incisions were made. This cellulitis started from uncleanliness between the fingers. The bone was taken out in two pieces. The result is a hand with which he can perform every motion as easily as with the other.

Dr. Bodine also reported a case of regeneration of the lower jaw following the removal of one-half for necrosis. The jaw was taken out from within the mouth—a perfectly feasible operation. He had done it twenty-seven times and not more than a teaspoonful of blood had been lost during the operation. The result is a perfect jaw with the exception of teeth.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MedicalNews *will shortly appear.*

A Text-Book of Pharmacology. By Dr. Torald Sollmann. 8vo. 880 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

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ORIGINAL ARTICLES.

CHRONIC MYOCARDITIS.[1]

I. MORBID ANATOMY AND PHYSICAL SIGNS.

BY J. H. MUSSER, M.D.,
OF PHILADELPHIA.

THE more recent studies of cardiac pathology impress one more and more with the force of the old term *morbus cordis,* employed in a generic sense to include the phenomena of chronic cardiac disease. Indeed, Laennec was not far from the truth, in a clinical sense, although not quite correct in his pathology, when he devoted six chapters of his work to hypertrophy and dilatation, five to atrophy, softening, induration and fatty degeneration, and one only to valvular disease. When you think of it, if the heart muscle is healthy, chronic valvulitis yields but few symptoms. If the former structure meets the physiological demands required by the valvulitis, in most lesions no symptoms arise. Valvulitis of the aortic leaflets, admitting regurgitation, is the only lesion which may cause symptoms independent of the state of the myocardium. While the chronic valvulitis may exist for a life-time with a minimum symptomatology, yet in striking contrast we see chronic disease of the anatomically associated structure—the myocardium—with a most complex pathology and symptomatology. It is not common to have chronic myocarditis, without some hypertrophy, dilatation, atrophy, fatty degeneration or infiltration, singly or combined, or to have any of the latter conditions without myocarditis. In consequence the symptoms of myocarditis are intermingled with those due to other mural changes. Such mingling of pathological conditions must imply a common fundamental causation. Such we see in the state of the pericardium (local myocarditis) or of the coronary arteries (fibrous myocarditis), on the one hand, or, on the other hand, in varying conditions dependent upon intracardiac pressure (myocarditis with dilatation after valvulitis, emphysema or nephritis), or upon the nutritional value of the blood (myocarditis of anemia with fatty degeneration—the fatty heart), or upon the direct but general action of infectious or toxic agencies (parenchymatous myocarditis).

Myocarditis after pericarditis is exemplified in the case of A. E., aged sixty-three years.[2] Heart enlarged; weight 19 ounces; enormous amount of pericardial fat, and distinct chronic pericarditis, there being firm adhesions, nearly obliterating the sac. Hypertrophy is general, the right ventricle being considerably thickened. Aortic valves thickened, with dilatation approaching valvular aneurisms. Mitral valve also much thickened, stiffened and dilated. No calcification. Aorta normal. Tricuspid valve decidedly dilated. Heart muscle flabby, containing some white patches, suggestive of fatty metamorphosis. Cavities decidedly dilated.

Myocarditis with dilatation is frequently seen as the terminal event in cases of chronic lung disease, as emphysema (right heart), or of chronic nephritis or of arteriosclerosis. It was typically seen in the case from which the specimens to be described were removed.

Dilatation of Heart.—A. L., aged fifty-nine years. Heart, in pericardium, extended in fourth interspace from nipple line on right to two inches beyond left nipple in fifth interspace. Pericardial sac contained about the normal amount of fluid. Heart weighed 28 ounces. There was enlargement of both sides. The veins over surface were distended. The cavities were filled with antemortem clots extending into the vessels. Over the right ventricle there was a milky-white patch about three inches in diameter; over the apex another similar patch the size of a quarter of a dollar. The left ventricle was more than one inch in thickness. The muscle was pale red, quite soft and fatty. The papillary muscle was hypertrophied. The anterior muscle was fully half an inch in breadth at base. Tips were fibroid. Chordæ tendineæ thickened and contracted. The cavity was dilated, four fingers being admitted into valves. The right cavity was enormously dilated. The tricuspid admitted four fingers. The muscles were soft, pale and fatty. The fatty degeneration was not uniform, but in various areas. All the papillary muscles were hypertrophied. The mitral valves were thickened at edges. The bases were surrounded by a ring of atheroma (calcareous) of irregular thickness in continuity. The aortic valves were extensively diseased; the inter-coronary leaflets thickened along edges and at base. The coronary arteries were free from atheroma, except at the mouths, which were dilated.

The remarkable changes in the heart muscle seen in pernicious anemia are too well known to require description, as also are the appearances of parenchymatous myocarditis.

Fibroid Heart.—Far more frequently we find myocarditis, either local or general, the result of coronary artery disease. It was well seen in a case which presented the typical fibroid heart. T. L., aged eighty-one years. The heart was large, without much subpericardial fat. Recent patch of pericardial thickening was seen over apex. Right ventricle enlarged and contained antemortem clot. Muscle very hard, red and

[1] Read in part before the New York Academy of Medicine, and in part before the Virgina State Medical Society.

[2] For microscopical report of the cases reported herein, see Musser and Steel, Trans. Phila. Path. Soc., Feb., 1898, Vol. I., New Series.

firm. Left ventricle hypertrophied at base, 1¼ inches thick; at apex ½ inch thick, tapering. Papillary muscle of anterior cusp thickened, hypertrophied and fibroid at tip. Fibrous substance extends far up the chordæ tendineæ. Papillary muscle of posterior cusp short, thick and fibroid. Mitral valves slightly thickened and atheromatous. Muscle of left ventricle pale, firm and not fatty. Aortic valves thickened at edges but competent. Aorta the seat of extreme atheroma lined by calcareous flakes. Both coronary arteries atheromatous. Valves of right heart normal. Aorta extremely dilated in ascending portion.

Local Myocarditis.—In the following the appearances were even more striking. R. B., aged fifty-eight years. Heart was enlarged and weighed 20 ounces. Cavities were dilated. In left ventricle, old thrombi were adherent to walls, and there was a recent clot. Papillary muscles enlarged. Slightly fibrous tips, otherwise presenting but little degeneration. Vessels in papillary muscles very distinct, undoubtedly enlarged in caliber. Underneath papillary tip in substance of muscle was a dark red area. Muscle at left apex pale red, mottled yellow, rather firm material. These areas of yellow fibrous matter in the ventricle were next to the cavity, and usually most pronounced when opposite thrombi. Anterior ventricular septum much thickened, very firm and on section presented yellowish areas alternating with dark red, with normal muscle interwoven. The papillary muscle of the anterior cusp presented the greatest change. Left auricle dilated moderately. Mitral valve admitted three fingers. Some areas of atheroma. The tricuspid orifice was enormously dilated; valve normal. Papillary muscle presented some yellowish-white fibrous change. Muscle was firm, mottled in areas, presenting the most marked change below the pulmonary valves. Auricle much dilated; cavity enlarged and much hypertrophied. Some opacity at base of tricuspid and undoubted degenerative changes. Anterior coronary artery markedly atheromatous, presenting a recent antemortem clot and an old thrombus, which evidently occluded the vessel largely about one inch from its origin. Surface of heart presented dark red or normal color and light red areas, alternating with yellowish mottling. This area was over the surface of the left ventricle, two inches wide, extending from the base to the apex. It appeared to include that portion supplied by the vessel which was the seat of thrombus. The auricular appendix presented marked areas of yellowish-white fibroid degeneration. Orifice of posterior coronary somewhat occluded, not, however, presenting so rigid and marked appearance. Fat along this artery was abundant, while along other branches markedly lessened. No thrombi in the lumen of the large veins. Marked and most prominent degenerative changes were seen in the muscles, independent of the fat. Aortic valves normal. Aorta atheromatous throughout entire course.

Local Fibrous Myocarditis.—Or again we see in arteriosclerosis the following appearances of local fibrous myocarditis. J. H., aged eighty-six years. Heart weighed 16 ounces. Left ventricle three-quarters inch in thickness and apex one-eighth inch thick. Color red, with soft subendocardial staining. Papillary muscle rather small. Fibrous at the tips; yellowish color at points. Areas quite marked on section of the muscle. No "tabby-cat" striations of muscles. Chordæ tendineæ short and thick. Mitral leaflets thick. Edges indurated, but not calcareous. Competent valves. Aortic valve thickened. Corpora not enlarged. Some thickening across middle valve. Base of valves atheromatous. Coronary pouch quite dilated; valves apparently dilated. Aorta dilated, with some atheroma. Coronary artery (right) dilated; walls thickened. In the middle of the artery there is a patch of atheroma (calcareous) half an inch long. Artery seems to be wider below than above. Left coronary artery walls thickened. No atheromatous patches. Right ventricle walls thin and soft. On section from the middle of the cavity to apex in center of muscle is seen a buff-colored leathery line averaging one-sixteenth inch in thickness, more marked toward the apex. A number of the papillary muscles in apex are yellow in color, and on section show fatty appearance. The left ventricle is one-eighth inch in thickness. The cavity is dilated.

Leaflets of posterior coronary valve are thickened at margin and are atheromatous; more on the anterior. The muscles are not dilated. The muscle is fatty and fibrous on section. Left auricular endocardium is thick and dull. The muscle is pale yellow in color. In appearance the walls are leathery, being wrinkled and tough. Chicken-fat clots were found in the ventricles and extended into the vessels. The cavity of the left ventricle was dilated. Atheroma of aorta extended throughout its course. It was observed in internal mammary, renal and colon areas. Further examination not made.

Myocarditis and Valvulitis.—The degenerative changes seen in the heart with valvulitis were well exemplified in the following case. W. H., aged twenty-four years. Heart enlarged; left ventricle hypertrophied. Muscle firm. Same appearance in intraventricular septum of fibroid change as just described. Papillary muscle small. Fibroid at left. Chordæ tendineæ contracted. Mitral orifice admits two fingers very readily. Mitral valves are thickened, atheromatous. The aortic valves contain a few atheromatous patches, particularly at the base. The coronary arteries are atheromatous, elongated and twisted. The aorta is dilated in ascending portion throughout the seat of extensive atheroma.

Local myocarditis was found in the following cases:

Local Myocarditis and Valvulitis.—J. P., aged seventy-six years. Heart weighed 25½ ounces. Right side flaccid. Right auricle contained about three ounces of pure blood. Left side flaccid. Auricle contained about three ounces of blood, ventricle about four ounces of fluid blood. The walls of right ventricle slightly thickened. Ven-

tricle contained about five ounces of fluid blood. The walls of left ventricle were somewhat thickened and in the lower posterior portion, near the apex, an area one inch in diameter and extending nearly through the thickness of the wall was white and fibroid. The pericardium, particularly in left side, was thickened and showed scattered white spots, about one-quarter to three-eighths inch in diameter. The aortic valve, calcareous and slightly incompetent. Atheroma of coronary arteries. Aorta atheromatous, containing calcareous particles.

Local Myocarditis.—J. R., aged forty-nine years. Left cavities filled with soft black clots. Left ventricle firmly contracted and hard. Right auricle contains yellow clot, some black clot and fluid blood and is distinctly enlarged. The valves of the right side of the heart are normal. The Eustachian valve shows distinctly. The coronary sinus will easily admit a small finger, and does not show any valves. There is no opening through the fossa ovalis. The muscle of the right heart is unusually firm, 12 mm. thick, pale in color; papillary muscles are mottled. The left auricle is normal. The mitral valve is somewhat thickened along the edge but not retracted The anterior surface of the anterior leaflet of the mitral valve shows several patches of atheromatous infiltration. The left aortic valve shows a patch of calcareous infiltration at its base. The other aortic leaflets are normal. There are many small patches of atheromatous infiltration around the sinus of Valsalva and around the coronary arteries. The muscle of the left ventricle is about 23 mm. in thickness. The color of the outer portion of the muscle is brown; the deeper layers are yellow. The papillary muscles are mottled and very pale at tip. The muscle of the left ventricle is not enlarged. The coronary arteries are extremely atheromatous. Weight 18 ounces.

Time forbids allusion to the clinical course of the various forms of myocarditis just referred to. What has just been said of the complexity of the phenomena can be appreciated by noting the following: (*a*) Myocarditis secondary to pericarditis has the symptoms of dilatation or of dilated hypertrophy and sometimes of that curious group of symptoms associated with mediastinitis, hepatitis and splenitis in which the predominate or unequivocal symptoms are hepatic and splenic, with ascites; (*b*) myocarditis following valvulitis or peripheral obstructions (lung or kidneys) is associated with symptoms of dilatation; herewith are intertwined, on the one hand, the symptoms of emphysema or nephritis; or, on the other hand, those of valvulitis; the physical signs of the latter condition obtain; it is most difficult often to go beyond the diagnosis of dilatation of the heart; (*c*) myocarditis of toxic and anemic origin; the fatty heart is associated with symptoms of grave secondary or pernicious anemia or of toxemias, as from tobacco or mineral poisoning or from chronic infections; (*d*) fibrous myocarditis—coronary artery disease.

It is to the clinical expressions of this form of myocarditis I beg leave to call your attention. In the description of the lesions it may have been observed that most of the patients were old subjects, and hence I gave to you an anatomical account of the senile heart—the fibroid heart. Clinically cases of senile or fibroid heart are so mingled with the other phenomena of senility that we are not wont to ascribe the symptoms to the cardiac lesion more than to the associate degenerative lesions of other organs of the body. Moreover, the vegetative inactive life led especially by those who become inmates of infirmaries dulls the sensibilities, reduces the vascular strain or tension to a minimum and hence effaces or obliterates most of the phenomena of myocarditis.

That form of chronic myocarditis which comes home to us more forcefully is the one seen in subjects just past the prime of life—mostly in males. Their career has been one of active strife, of the surmounting of difficulties. They have usually been accustomed to the good things of the earth and perhaps have been victims of early syphilitic infection.

March 9, 1898, I was consulted by T. W., manufacturer, aged fifty-eight years; married; has children. Uses tobacco and stimulants moderately. Father died of old age at ninety-three, mother died at eighty-seven, brother died four years ago. Patient's general health always good until present trouble. Never had rheumatism or gout. Prior to six years ago worked very hard. One year ago began to suffer from oppression or accumulation of mucus requiring cough; gradual increase in difficulty of breathing and past few months oppression or weight on heart. At present, smothering at night, necessitating sitting up in bed. Past year, swelling about ankles at night. Coughs in morning to raise mucus (sticky). Appetite good; no indigestion; gaining in weight, now 240 lbs., but is losing strength. Bowels regular. Feels languid and has dyspnea on slight exertion. Is prematurely old. High-tension pulse. Artery elongated. Marked accentuated aortic second; uncertain murmur at second aortic. Heart's impulse not seen or felt. Apex sound loudest at fifth interspace. Both tricuspid and mitral are feeble. Color pale on exertion. Hands dusky.

March 14th: Tired in morning; wants to sleep on reading.

March 21st: Pain and weight better. Can breathe much more freely. Sleeps without smothering at night. Pulse 96.

October 1, 1897. J. H. J., merchant; aged fifty-five years; married; no children. Until three years ago was an inveterate smoker. Uses no stimulants. Formerly used coffee; now none. No unusual hours of wakefulness. Meals regular. Fast eater and drinks much water. Syphilis in 1863, primary and secondary. Has not been South or exposed to malaria. No acute disease. Had bilious attacks. Father died of bilious trouble, aged seventy-two. Mother died as result of accident. One sister living and healthy. One brother died of consumption of bowels. Two and

a half years ago continuous headache, which seemed to affect memory, partly occipital and partly frontal. This headache continued one and a half years. One dose of bromocaffeine would relieve. Irregular as to time of day in severity; not increased by any known cause. Nine months ago began to be short of breath. In July very bad, but now better. Dyspnea increased by walking and ascending stairs, but can ride wheel. The oppression occupies a circle about eight inches; not worse after food. Weight formerly 200, now 180; reduced by disease. Appetite fair; no nausea. Discomfort two hours after eating. No flatulency, but dull heavy pain, with desire to sit up straight. Dyspnea not worse after eating. No palpitation; no fainting.

Physical examination showed patient to be somewhat pale, with sallowness; said to be natural. Flabby. No scars; no eruption. Heart a little to left. Apex feeble. Impulse feeble in fifth interspace inside nipple line. Not enlarged upward. Gallop rhythm and slight intermittency and irregularity. Accentuated second aortic greater when standing up. Gallop rhythm greater with recumbent posture. High arterial tension. No venous phenomena.

November 28, 1897. Until yesterday quite comfortable. Past twenty-four hours some shortness of breath and gastric disturbances. Color better; strength better. Occasionally some dyspnea, but not so frequently as formerly. Does not rise to pass water. Muscular sounds of heart better. No accentuation. Some muscular pain in chest. On talking or reading gets distress in chest; has to stop on account thereof.

December 8, 1897. More dyspnea past week. Last twenty-four hours pain and soreness in chest. On physical examination liver still large. Heart's action feeble and irregular with high tension and gallop rhythm. Bowels irregular as to character. Some headache and oppression. No enlarged glands.

December 13, 1897. Liver not tender now.

January 19, 1898. Numbness in arms and feeling as if going to drop off, from elbows down; begins shortly after exertion and stops as soon as walks.

February 2, 1898. Heart irregular. Dyspnea considerable.

February 16, 1898. Heart regular. Dyspnea continues. Some numbness. Apex outside middle clavicular line. Mitral and tricuspid murmur, and gallop rhythm at apex.

March 10, 1898. Death from apoplexy.

The form of chronic myocarditis that occurs at this period of life has some special clinical expressions too often not referred to the heart. Some of them have "pain" for their most prominent symptom; in others "dyspnea" is the most severe; in others syncopal or apoplectiform attacks and the curious Stokes-Adams syndrome. In still others, distressing arhythmia occurs. While more or less special symptoms pertain to each individual, the physical appearance and the physical signs are common to all.

Physical Signs.—Of these most common is the sallow pallid countenance. This is most striking. Rarely can you be wrong in the inference, when such persons present themselves, that the endarteritis has involved the coronary artery and that the myocardium is off. A general endarteritis may be present for a long time and yet no change occur in the complexion. Interstitial nephritis I have seen progress slowly, and yet no change in the complexion. The onset of this hue is generally synchronous with the degenerative cardiac lesion and usually cardiac symptoms or physical signs are found coincidently; the endarteritis involving the coronary arteries.

With the sallow countenance, the earthy complexion, a prematurely old appearance of the individual manifests itself, in the color of the hair, the baggy eyelids and the abundance of wrinkles.

With the external appearance common to most cases the results of physical examination usually tally. In the first place there is evidence of endarteritis in the vessels. The palpable, often tortuous vessels show thick walls and high tension. The temporal arteries are prominent and we have the other indication of degeneration, the *arcus senilis*.

The physical signs of the heart are those of the (*a*) myocarditis alone, or those of (*b*) myocarditis plus some hypertrophy, or those of (*c*) myocarditis plus dilatation. The physical signs of myocarditis are those of feeble or absent impulse; or, if palpable, of apex impulse displaced to the left; of marked increase in the area of absolute cardiac dulness and of characteristic auscultatory phenomena.

The latter phenomena are those either of a systolic shock, greater than the force of the impulse would lead us to believe to be present, or of feeble muscular sound. In the early stages the former exists, and it continues later if hypertrophy co-exists. From the first, or at least early, we have gallop rhythm, or reduplication of the systolic sounds. This reduplication may be heard over the right heart or more distinctly over the left heart; sometimes it is heard all over the precordia. My impression is it is more commonly heard in the parasternal line at about the fourth rib. It may be more marked in the supine position and is generally more marked after exertion. It may disappear after a stimulant is taken or if the heart is stimulated by fever. Reduplication of the second sound also obtains, but is less frequent in the myocarditis of coronary artery disease than in that due to valvulitis or nephritis. In uncomplicated cases murmurs are not heard until late in the disease. Sometimes, however, we hear a systolic murmur at the fourth rib, greater in the recumbent posture. This murmur is soft, low in pitch and so often heard in the parasternal line that it is my custom to call this line the myocardial line. Again, it is at the tricuspid or even may be in the pulmonary area—when it is probably, although not necessarily, hemic.

My studies have not followed so closely and

exhaustively as their importance demands the brilliant observations of Sewell. I cannot help but think with him the papillary muscles are the source of the auscultatory phenomena of myocarditis whereby leaflets do not coapt synchronously, or areas of the muscle synchronously contract.

When dilatation supervenes, if it does, the physical signs change in keeping with the physical condition of the heart. Here however, the auscultatory signs of insufficiency at the mitral and tricuspid orifices are predominant, rarely at the aortic; accentuation of the pulmonary second sound is a frequent sign, with low tension pulse and engorgement of the venous side of the circulation.

The pulse is like that of endarteritis. The artery is readily palpable, isolated with ease, showing high tension, and while apparently strong because of a quality of fulness which with the hard vessel gives a feeling of strength, it is actually feeble. The arteries are fibrous but not necessarily atheromatous. Indeed, the patient with pronounced atheroma will probably not have symptoms at least of endarteritis and will die of cerebral thrombosis or of senility alone, or of intercurrent or terminal infections. Our middle-aged patient with endarteritis does not necessarily end with advanced atheroma, but dies of apoplexy, nephritis, angina or sudden heart asystole.

The myocarditic heart of fatty degeneration—the fatty heart—presents some similar signs. A visible impulse is wanting and any palpable impulse is felt as a slap against the chest wall. The area of dulness is normal or slightly increased; a loud hemic murmur at any orifice, but most frequently at pulmonary and aortic valve, may be heard. Just as frequently the sounds are almost inaudible, the second sound at the base alone is conducted to the ear. There is pulsation of the vessels.

We may say, then, that myocarditis may exist (1) without definite physical signs—a rare occurrence I believe; (2) with signs of moderate cardiac hypertrophy, marked reduplication being the only physical sign and of significance only when coupled with signs of endarteritis; (3) with physical signs of dilatation; (4) with physical signs of fatty degeneration; (5) with the physical signs mentioned, which in the aggregate are of great significance.

PROLONGED MEDICATION, WITH SPECIAL REFERENCE TO DIGITALIS.

BY ABRAHAM JACOBI, M.D., LL.D.,
OF NEW YORK.

SEVERAL meetings of the German Congress of Internal Medicine have discussed the effects of digitalis when given continuously for a long time. That question was also raised in a recent discussion, mainly by Dr. Robert Ingram and Dr. Frank Scherer, before the Academy of Medicine of Cincinnati.

The woful stories of its cumulative action were told and retold. Indeed, I dare say that there is no careful or careless practitioner that has not observed it; there may be nausea, vomiting, retarded or irregular pulse, and collapse. When I was young I saw it often, mainly after large and repeated doses, and remember well that I believed that I obtained a salutary effect—in pneumonia, for instance—from that very action. But after all time has taught me several things. I now know, for instance, and have acted on that knowledge for more than a decade, that in many bad cases of dilatation of the right heart, with cyanosis and orthopnea, when nothing but a large venesection appears to hold out a promise, one, two or three doses each of ten or twelve grains of digitalis, given at intervals of three or five hours, will contract the heart and restore pulmonary and general circulation; that, on the other hand, in chronic conditions of weak heart, of either muscular or nervous origin, or of insufficient action caused by pulmonary obstruction—as in chronic bronchopneumonia or in tuberculous infiltration—small doses of digitalis, that is, from 4 to 6 grains (0.3-0.4) daily, or its equivalent, may be given for weeks and months and even years without any hesitation. Such doses may be ordered while the patient is not expected to be seen for weeks or months. Indeed, there is hardly a day when I am not obliged to prescribe them to patients who I know will not reappear for a month or more. In most cases I prescribe either from four to six doses daily of Squibb's or any other good fluid extract, or the solid extract of the Pharmacopœia in the shape of pills, 1½ grain (0.1) daily, usually ½ grain three times a day, almost always in pills, rarely by itself, often in combination with sparteine, or strychnine, or arsenic or other drugs, as the case may require. Such combinations are generally observed to be useful, as nosologically they are required by the fact that the heart is not a uniform body but a combination of muscular, vascular, and cerebrospinal and sympathetic nerve fibers; that we have but rarely to deal with an affection of only one of them, and that the theoretical demand of only one remedy in a prescription looks well on a platform, as the ornamental trimming of an impressive address to the young, but gives one but a poor show at the bedside.

Patients who take digitalis in this way do not show a cumulative effect, nor are they getting accustomed to it to such an extent as to lose the benefit of its action. Indeed, their heart requires a daily stimulation and daily doses. Mercury is given for months, iodides for months, not only in syphilis but in the cardiac ailments of atheromatous old age where digitalis is not tolerated, and in asthmatic conditions. Arsenic is administered in psoriasis, lymphomatosis and sarcomatosis for months and years with rarely an interruption unless the doses be excessive. Phosphorus demands a course of six or eight weeks to break up a bad case of rhachitis. Thyroid, thymus, or suprarenal gland is required for many months or even years to accomplish the end in view. Every-

body knows that and should add digitalis to the list of his drugs that ask for continued small doses when a continued effect is expected.

This looks so simple and *is* so simple that I never knew these thirty or forty years that I did anything which required discussion. During all this time I practised this method, taught it and mentioned it in papers, for instance, in one on "Arsenic and Digitalis in the Treatment of Consumption," read before the New York State Medical Society in 1884. Great, therefore, was my astonishment when before the Seventeenth Congress for Internal Medicine, two years ago (1899), Dr. Grödel of Nauheim spoke in favor of continued small doses of digitalis in appropriate cases. He was frowned down by most of the celebrities present, but soon Kussmaul[1] published his cases of continued digitalis treatment, and he is not usually frowned down. Thus it happened that this year public opinion veered rather in the direction of Grödel's position on that question, mostly with the understanding, however, that a careful watch must be had over the patient. When the observations of the past two years will have been confirmed by those of the next ten, that careful watch will be discontinued as unnecessary.

In my paper read before you in 1884 I discussed the effect of small doses of digitalis continued a long time and their action in pulmonary phthisis. I then spoke as follows: "In the vertebrate, digitalis increases the energy of the heart muscle and the volume of its contraction. Thereby it increases arterial pressure and diminishes the frequency of the pulse. In this connection it is of no consequence whether the irritation of the inhibitory nerve is the primary or the secondary element. By increasing pressure in the arteries, besides favoring the secretion of the kidneys, it improves the pulmonary circulation, empties the veins and thereby accelerates the circulation of the lymph and tissue fluids. Thus, while having an immediate effect upon the heart and lungs, it exerts a powerful influence on assimilation and elimination, that is, nutrition in general.

"Therefore, both the local and general effect of digitalis are invaluable in all stages of phthisis. While, however, they may relieve in the last, they are a healing element in the first stages; the congestive and nutritive changes constituting the preparatory and, in part, the advanced stages of consumption are favorably influenced. I seldom treat a case of pulmonary tuberculosis without it. Very little care is required to avoid disagreeable results. Cumulative effects are either the consequence of excessive or too frequent—unnecessarily frequent—doses, or of the selection of improper preparations. Such, however, as are soluble in water with difficulty ought not to be used, for it may happen that, having been inert for some time, a large amount may enter the circulation at once. Particularly is this true of digitalin, which is by no means a soluble alkaloid, but a crystallizable glucoside of uncertain strength. The digitalins of different manufacturers yield widely differing results; the majority require immense doses compared with the dictates of the books in order to exhibit a perceptible effect. I use the infusion, the tincture, the fluid extract, and the solid extract. Their relative values I do not desire to discuss, except in regard to their advisability in phthisis, and the possibility of continuing them for a long time. Patients of that class we see from time to time only; they require advice and prescription for protracted periods. As a rule their digestive organs are amongst the first to suffer; indeed, many an alleged dyspeptic patient is afflicted with gastric disturbances first, and has his attention drawn to the lungs by his physician, who discovers the cause of his gastric catarrh in the retarded circulation of heart and lungs.

"In such a case the stomach exhibits the peripherous symptoms of the distant diseased organs in the same manner that a local disease of the brain or cord shows itself first in affections of peripherous nerves. Now, whenever the stomach is first affected neither the tincture nor the infusion is tolerated long. The latter, the officinal preparation, may be given three times daily in doses of half a tablespoonful each, or in two of three teaspoonfuls each, for some time; but I seldom wish to recommend it for more than four or five days in succession without seeing the patient. The fluid extract has often disappointed me; I cannot tell why, nor do I claim to know why. [That is what I said sixteen years ago; I can now say after daily observation extending over many years, I have learned to rely on Squibb's and some other fluid extracts.] My main reliance is on the solid extract and my almost universal method of giving it is in the form of a pill, in such combinations as will suit the individual case. The stomach does not object to it and taste is not offended by it. I often prescribe 1½ to 1¾ grains, corresponding to three and a half times its weight of digitalis, for weeks without expecting to see the case again. It combines with extract of nux vomica, with iron, with arsenic, with extract of belladonna, or extract of physostigma (Calabar bean), with ext. coloc. compound—in fact, with anything. Such combinations are frequently required in the early stages of consumption. The general muscular system needs toning up, the intestinal muscle requires strengthening, the intestinal tract evacuation, the intestinal and abdominal circulation easing. At the same time, iron may be added when there is no fever; or caffeine for its stimulant effect upon the heart and arteries."

Speaking as a general practitioner before a meeting composed almost exclusively of general practitioners, I desire to add in this connection a single remark on the general usefulness of digitalis in other cases. Every chronic disease and the results of the wear and tear of what is called civilized life have a depressing influence on all parts of the organism. The heart is not the last

[1] Therapie der Gegenwart, 1900, No. 1.

to suffer. Its muscular strength is tasked every second; it is the very organ that cannot and must not rest. Stagnation in an outlying province will overexert it; ill nutrition of the nerves will influence it, general anemia exhaust it, infection paralyze it, weak circulation or venous obstruction interfere with its structure and strength.

Now, what alcohol and ether are to the nerves, strychnine to the muscles in general, digitalis is to the heart, except in a condition of acute myocarditis. The increase of arterial pressure which it produces is beneficial not only to the outlying provinces, but also to the circulation and nutrition of the heart muscle itself. Thus, in all cases of general anemia, in slow convalescence where iron and nux vomica are called for, digitalis is likewise required. It strengthens the heart, propels the blood stagnating in its own fibers, and shortens the period of recovery. I have learned to look upon digitalis for restoring vigor and strength as of more than mere symptomatic value; I consider it one of the best tonics, along with iron, nux and arsenic, when given in small doses persistently.

The main effect of digitalis is the increase of cardiac contraction and of the volume of the pulse. Both are, according to Schmiedeberg, caused by the improved elasticity of the heart muscle and its more intense shortening during systole. The concomitant result is an improved action in diastole, for a heart that is thoroughly emptied during systole is better qualified to aspirate a new supply. The retardation of the heartbeat resulting from the stimulation of the pneumogastric nerve through the action of digitalis allows opportunity for the complete emptying of the ventricle with consecutive improved aspiration; in other words, the arterial blood-pressure and circulation are increased and afford the veins ample opportunity to discharge their contents. That is the effect of large doses of digitalis given once or oftener. To give big doses too often may lead to the exhibition of one or more of its bad effects, the so-called cumulation. Large doses, however, are not required for long, but many cardiac diseases demand moderate doses for moderate effect; more still require a persistent effect for the symptoms caused by anatomical lesions which cannot be removed. It is these that cause a persistent moderate incompetency of the action of the heart, which can be dealt with only by just as persistent moderate doses of the proper remedy. Years of cardiac ailment should be met by years of cardiac medication. This is intelligible to those who will be good enough to consider that insufficient metabolism and the hunger of the tissues can be treated only by persistent feeding, say three or four times daily, and not by the pouring in of a dozen beefsteaks at a time with fasting afterward.

The small doses which I recommend as the regular daily measure have only a moderate action on the blood-vessels. That is important to know, because large doses may contract the small arteries to such an extent as to increase the labor the heart has to undergo to overcome the increased peripheral resistance.

The indications for the use of digitalis according to the methods just indicated are the insufficiency of the heart muscle and the incompetency of the mitral valve. Chronic myocarditis is no contra-indication. Large doses may overexert the inflamed muscle; that is why digitalis in large doses is very badly borne in *acute* myocarditis; small ones are often serviceable when the first onset is passed. Aortic insufficiency has been declared a contra-indication to digitalis by some, an indication by others. I feel certain that these observers had different cases to deal with. Aortic insufficiency, when incipient or moderate, is easily compensated, gives no uneasiness to the patient, is not complained of, and is seldom observed when recent. This is the time when such doses of digitalis continued a long time prove of permanent service. Only those, however, can be thus benefited whose cases are recognized early, either accidentally or through careful self-observation by the patient. When, however, the case is old and compensation greatly disturbed, with considerable peripheral venous obstruction, even digitalis will not suffice to restore the equilibrium between the action of the heart and the capillary circulation of distant organs.

A last word on one form of incompetent metabolism with which we frequently have dealings, namely, chlorosis. I never treat it without adding digitalis to the iron and the mild vegetable purgative the patient is to take. Its influence on the circulation of the body in general and the heart vessels in particular is such as to improve general and local nutrition for reasons detailed before. All forms of chlorosis are benefited by it, the common as well as the severe form pictured by Virchow and Germain Sée. In this, while the heart may be normal in size but is generally of feeble structure, the arteries are small and do not provide for a sufficient organic nutrition. It will be easily perceived how the action of digitalis in small doses, persistently given, cannot help but be beneficial.

HEART STRAIN: ITS RESULT AND TREATMENT.[1]

J. M. G. CARTER, M.D., D.SC., PH.D.,

OF WAUKEGAN, ILL.;

EMERITUS PROFESSOR OF CLINICAL MEDICINE, UNIVERSITY OF ILLINOIS (COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO); MEMBER OF AMERICAN MEDICAL ASSOCIATION.

THE study of heart strain and cardiac conditions referred to heart stress is of comparatively recent date. British surgeons serving in India discovered that dilatation often occurred among soldiers, and Watson, in his lectures, expressed the opinion that it is more common in civil life than was usually supposed; but it was not until later that mechanical strain was recognized as a cause. As late as 1871 Allbutt made the remark that "mechanical causation of heart disease is either omitted, or is treated in a way so meager

[1] Read before the Illinois State Medical Society, May 21, 1901.

as to be worthless, by the European and foreign writers."

The first studies in this direction reported in the United States, so far as I am aware, were made during the war of 1861-65. Dr. M. R. Taylor sent a synopsis of some investigations made by himself in this field to the Surgeon-General's Office in 1864, and reported them to the American Medical Association in 1867. Dr. J. M. Da Costa reported the result of his investigations to the Sanitary Commission in 1867, and published it in the *American Journal of the Medical Sciences* in 1871. In the same year, 1871, Meyers, of the Coldstream Guards, wrote of the frequency of heart strain in the British army. In 1873 Fräntzel gave the results of his observations in the Franco-Prussian war. Since that time much attention has been given to the subject. One of the most earnest and careful investigators of this condition in civil life is Dr. Allbutt of Leeds, England.

A study of the literature of cardiac disease shows that the first attention given to this subject was due to the occurrence of sudden dilatation in army life. That sudden dilatation may occur has been recognized by Claude Bernard, Osler, Fothergill, Goodheart and many others. Dr. Gairdner suggests that if we place the finger over the apex where the impulse is felt most distinctly, then lean forward to a stooping position and hold the breath about one-half the expiratory interval, and continue this as long as possible, the impulse will gradually vanish as the distention of the right ventricle goes on until it is finally lost. Prof. Wyman makes the following report of experimental studies: He says: "I took a medium-sized dog, opened his chest after making tracheotomy, noted the action of the heart and the relative size of the two ventricles. Then I put the nozzle of a strong bellows into the trachea and distended the lungs with air. Under the pressure thus induced in the air-cells, the enveloping capillaries were elongated and the blood was dammed up in the pulmonary artery and the right side of the heart, distending the right ventricle to a remarkable degree. I found that an increase of pressure in the air-cells produced proportionate increase of pressure in the right ventricle. Subsequent repetitions on other animals showed that a peculiar pallor would appear in the tongue and membrane of the mouth when the right side of the heart was overdistended. Then in another trial I distended the pulmonary air-cells by placing a dog in a box while the air-pressure around the body inside the box was lowered three inches, as measured by barometer. Pallor of the tongue was again noted, and after the animal was taken from the box locomotion was performed with great difficulty; for days subsequently the exertion consequent upon a scramble for food would provoke dyspnea."

The suggestion of Dr. Gairdner and the experiment of Prof. Wyman point to the fact that dilatation of the right ventricle is the result of sudden interference with the circulation, or increase of blood-pressure. The condition, then, of heart strain originates in a forcible dilatation of the heart by blood-pressure from within. The damage, however, falls chiefly on the ventricles. This may occur suddenly, under great physical stress, or more slowly from causes less pronounced, but acting through a greater period of time. The right ventricle is most frequently affected. Dilatation of the left ventricle must be attributed to causes more remote, such as obstruction to the passage of blood through the arterioles of the general circulation, caused by muscular pressure, the elasticity of the larger arteries meanwhile easing the strain of the muscles appertaining to the heart. Shock is thereby lessened and the dilatation more gradual (Allbutt).

The effect of heart strain may best be understood by calling attention to the condition of the heart under normal circumstances. It is the function of the heart to carry on the circulation. Its work consists in moving a column of blood equal to about $^1/_{13}$ of the weight of the human body. Under normal conditions in a man weighing 156 pounds, this requires that the heart shall keep in motion a column of blood weighing in the neighborhood of twelve pounds. In each individual the heart is adjusted to the work to be done, so that an equilibrium may be maintained. This equilibrium may be disturbed to a degree and the natural recuperative power enables the heart to resume its normal condition; but if this disturbance continues by overwhelming efforts, or by continued effort in slighter degree, eventually the equilibrium may be destroyed and disease result. Muscular action increases the blood-pressure. Extraordinary effort, and even ordinary effort continued, may increase blood-pressure. If the heart is not overworked, that is, if only such effort is made as the heart is able to maintain without disturbing its equilibrium permanently, a degree of work is beneficial and will keep the system in a more healthful condition. But if extraordinary effort, either sudden or prolonged, is made, or if any other resistance to the peripheral circulation exists, as diseased arteries, or cirrhosis of the kidneys, lungs or liver, the blood-pressure is increased, the strain upon the heart is augmented, and the results of such strain must follow. These results are, in case of sudden and violent strain, engorgement of the right ventricle with blood and rapid dilatation. In the case of less pronounced blood-pressure dilatation will follow more slowly, but none the less surely.

The effect of heart strain, then, is seen in two ways, (1) by overwhelming disturbance, causing immediate faintness, possibly paralysis and death; (2) a more gradual dilatation from lighter and daily strain. When the shock does not terminate in the death of the individual at once the normal irritability of the heart is in a great measure lost. The heart muscles are in the condition of muscles in any other part of the body when the fibrils become unduly stretched and strained;

the rhythmic action becomes feeble, tremulous and imperfect. In the case of the heart the condition is one of profound asthenia; it is possible, even in this instance, for the effects of strain to be removed, and if the heart has the opportunity to rest under proper treatment it may recover its normal size in a short time, but its rhythm of action may be destroyed for weeks or months. If the strain is not sufficient to produce at once such destructive results, the changes, although less pronounced, may still be damaging. The functional disturbances of the organ are but expressions of the damage it has received. When the condition has existed until the second stage has been reached it is seen either as simple dilatation or dilatation with some hypertrophy. Later there may be dilatation with decided hypertrophy, or there may be hypertrophy without dilatation, the cavities retaining very nearly their normal size.

There are two periods of greatest danger; one is at night, during those hours when the periodical distress returns and when respiratory movements are most sluggish; the other is when, upon rising from a recumbent position, the column of blood in the upper part of the body is suddenly thrown back upon the enfeebled ventricles, thus at the same time diminishing the brain pressure.

When the arterial tension is already high it is increased relatively more by whatever tends to raise the blood-pressure. That mechanical stress or strain is an important element in the case of disease of the heart, no one of great experience can doubt. Most cases of certain diseases of the heart—hypertrophy, dilatation or valvular lesions—occur in those who have been subject to strain, such as hard manual labor, army life, athletic sports, football, bicycle-riding, high arterial pressure and the like. This is nothing less than should be expected in view of our knowledge of the circulation of the blood and the structure of the vascular system.

Reference has been made to the equilibrium of circulation. The circulation is oscillating and exhibits a certain variation of pressure under normal conditions, due in part to the natural elasticity of the vessels and in part to changes in muscular contraction. Injury is done to the heart whenever resistance is excessive, as muscular effort with a tight belt or casing surrounding the body, and even when slightly above normal for the individual, but continuous in rigid vessels, as in those of advancing years. Resistance to the heart's action and a degree of strain occur in cases of cirrhosis of the lungs, liver and kidneys, or mechanical effort continuously above what the elasticity of the vessels or the natural strength of the heart muscles can easily overcome. Dr. George Oliver asserts that observations with the pulse-pressure gauge have shown that when other indications are favorable the lower ranges of pressure are not only more salutary, but are very often compatible with the highest degree of health. The increase of blood-pressure caused by sudden and severe resistance is not characteristic of habitual muscle exercise and, indeed, later tends to reduce the mean arterial tension (Allbutt).

Persons who lead sedentary lives are more liable to heart strain than those whose lives are accustomed to habitual exercise. One who lifts a heavy weight occasionally is more liable to disease than one who does it continuously; but, if a continuous exertion is in excess of that to which the heart and arteries may easily adjust themselves, harm may result. Many of these cases occur in retired life. A man who has given up business and travels for pleasure often upon climbing a mountain or taking active exercise becomes faint or short of breath. The sudden compression of the blood-vessels by the muscles which are required to contract beyond their custom raises the blood-pressure sometimes to such a degree as to rupture a limb of the aortic valve. If no damage occurs at first, however, one may become accustomed to such exercise and rather improve under it. "Dr. Weber, during an ascent at the beginning of his holiday, stated the rise of pulse-rate to be 74 to 122, and after a week's active walking the rise was from 74 to 105."

According to Allbutt, dilatation of the right side of the heart is an early symptom of prolonged exertion, but sudden strains affect the aortic area. Other authors, as Barr and Oertel, affirm the same. Physiologists tell us that there is an initial rise of pressure in prolonged exertion, such as running, rowing, cycling, ball-playing and the like. The blood is not driven out of the heart at each contraction, hence slow dilatation occurs. The heart may adjust itself to the increased pressure. It is this condition which occurs in what is called getting the second breath, or "second wind." Accumulation of waste products occurring in the blood in cases of severe exercise may have some effect in producing stress of heart directly or indirectly (Allbutt). The physician will often suffer from such condition. Called suddenly in the night or at other times, in emergency cases, he frequently runs to the patient or to a train; when he reaches the spot he is profusely perspiring, short of breath, almost or quite faint, perhaps sick at the stomach; the face is cold; pulse rapid, small, of low pressure; examination will probably show an increase of cardiac dulness; the cardiac area is enlarged. If the patient is not too far along in years the dulness subsides after rest. If he is past middle life the pulse may become irregular and intermittent, and albuminuria may follow in the milder cases. In more acute cases pain and constriction are felt in the region of the heart, rarely in the arms. The pain may sometimes extend as far as the second interspace. There may be dyspnea, yawning, exhaustion, cold sweat on the forehead; the pulse may be irregular in force and rate and intermittent, the right ventricle enlarged. When blood-vessels are rigid, as in the aged, the danger is greater.

It was formerly supposed that heart strain

was confined to the profession of arms. The compression of belts and accoutrements seems to interfere with the natural elasticity and movement of the heart in its function of expanding to relieve the increase of blood pressure under strain, and it may precipitate trouble under physical efforts which the patient might perform ordinarily with ease. When at rest he feels fairly well. There is no distress, no throbbing in the chest. As soon as he puts on his accoutrements and begins drill everything is changed. The heart throbs more or less violently. A feeling of oppression with a difficulty of breathing is experienced, and a sensation of weakness, sickness or dizziness follows, and he may be compelled to fall out of the ranks. I saw such cases during my own military experience in the Civil War, but I was not then a physician and was unable to profit by that experience. The sensation, however, I understand, for I was one of the victims of the condition. We had been marching for some hours, and just before reaching camp we were urged to a more rapid step. As we ascended a hill I was made conscious that something was wrong; the heart began to beat hard, I grew faint, sick, dizzy and fell at the side of the road. I lost consciousness only a moment, but was not fit for duty until the next morning. At first the condition is only functional, the soldier being able to resume his duties after a brief rest. It is fortunate if the strain is not brought on again. I was soon transferred to a position where most of my duties were performed on horseback, and my heart trouble ended.

Where the duties remain hard or care is not exercised the symptoms remain and the conditions grow worse. In acute cases the symptoms are almost uniformly described as, first, a flush of the face, particularly the cheeks, chin, nose and ears, and deepened color of the lips; the veins of the neck become turgid and the respiratory movements are limited to the upper portion of the thorax; very soon respiration becomes labored, breathing short; there is profuse sweating, a deathly pallor and great weakness rapidly succeed, and, unless caught, the man falls to the ground.

My observations of heart strain and its results have been confined chiefly to athletes, baseball and football players, cyclists and soldiers of the Civil War, Spanish-American and Philippine Wars, and soldiers from the regular army. I have seen a few cases among boys, laboring men and travelers. The milder or slower form, resulting from slower processes, is very common among laborers, porters, hod-carriers and others engaged in employment where sudden and powerful effort is occasionally required, or prolonged effort (though of less pronounced character) is sustained.

One of the most marked cases of sudden heart strain occurring in my practice was the following, which occurred five years ago. Mr. A., proprietor of a livery stable, directed his men one day to lift a heavy wagon and move it to one side. The efforts were not satisfactory, and he impulsively took hold of the load and lifted beyond his strength. He was seized with faintness and fell to the ground. I was summoned at once and attended him at his home two blocks away, where he had been carried. I found that the first symptoms were those of acute heart strain, but there were in addition those of ruptured valve. He had great pain and difficulty in breathing; the heart action was slow and irregular; the valvular flapping sound at the aortic opening pointed to rupture. He informed me that he heard "something snap" in the region of the heart when he lifted the wagon. The cardiac area of dulness was large, but gradually subsided to smaller dimensions, as the patient recovered. The symptoms gradually declined, and in a few days he was able to resume the lighter duties of his occupation, but it was some weeks before the sounds and the condition of the heart returned to their apparent former status. As the patient had a valvular murmur prior to the accident it was not possible to determine how much permanent damage resulted from the strain. Dilatation, however, still exists, and is likely to become more troublesome as life advances.

There are many of those cases among boys and young men given to hard exertion in games. One such I mention as typical of many. Last fall I attended a young man who had overdone a great many times. I saw him once after a hard run. At first the face was flushed, the body covered with red and whitish areas; the heart was beating violently, and the breathing was difficult; blood-pressure was low; the cardiac area increased; the right ventricle dilated. The patient grew faint, became pale, slight nausea came on, but after a few minutes recovery rapidly succeeded. I have seen him in three of these paroxysms. The heart is not permanently impaired, and he may remain well, as he has promised to forego such hard exercise.

Allbutt reports the following case: "A man of letters, whose constitution had been shaken by profuse hemorrhage in early life, took to the bicycle in middle age, and often rode hard and far. He complained to me that at times he felt some discomfort from it. On careful examination I found no sign of disorder, but I begged him to end his next hard ride at my house. He did so, and I then found his heart irregular and intermittent, the arterial pressure low, and the right ventricle dilated. Fortunately, on his next visit he was well again, but repentant."

Such paroxysms in the middle-aged pass off more slowly, and with greater difficulty; in fact, the damage is more likely to persist in proportion to the patient's years. The pulse may remain irregular and feeble for a long time, and the breathing become embarrassed by the least effort.

In a series of examinations of some 700 ex-soldiers I have been interested in observing the large number suffering from some form of cardiac disease, most of which can be explained by reference to heart strain. These morbid conditions may frequently be observed in those who

were in the Spanish-American War; already some of them are showing signs of hypertrophy, dilatation, and excessive cardiac irritability. We are assured by surgeons of the British army that high temperature increases the liability to heart strain. With this in view I have thought that the sudden transfer of our troops from Northern soil to a hot and depressing climate has had something to do with the frequent occurrence of this condition amongst those who served in Cuba during the late war. The same observations may apply to those serving in the Philippines. Many of these soldiers were clerks or office men unaccustomed to hard work or heavy strains. The digging of trenches or going on forced marches with their tight belts and heavy accoutrements under the rays of the hot Southern sun suddenly overcame many of them, and in others initiated troubles which will finally drag them to their graves. What these troubles may be is illustrated in the cases of the pensioners of the Civil War. The greater number of these veterans, perhaps, are suffering from some form of heart lesion due to overstrain of the organ caused by the duties of their army experience. These conditions to-day are chiefly dilatation with or without hypertrophy, and sometimes valvular lesions; rigidity of the arteries is a frequent complication and one of fatal significance. If compensation has not been ruptured, if hypertrophy is still maintained in sufficient degree to keep the circulation in equilibrium, and if the arteries are in a fairly healthy condition, life may be prolonged for many years. If, however, equilibrium is not sustained, if dilatation is gaining and hypertrophy is losing, if compensation is failing, breathing becoming more difficult and exercise a task, dropsies come on and progress toward the grave is more or less rapid.

The study of these cases is interesting. Among pensioners all varieties and stages of the affection exist. Often all the distress is located in the stomach, a slight indigestion, and all the general appearance and bearing of the patient is such as to lead one to suspect gastric or intestinal disturbance or engorgement of the liver or spleen, without cardiac complications. He may not know that he has heart trouble. When asked about the short breathing he says that it came on gradually. Persistent inquiry, however, will often elicit the statement that at some time an accident occurred, or an effort was made, which will point to the origin of the ailment. Often, again, he will indicate the time clearly, but stating that faintness came on after drill, a march or exercise, but soon passed off. Sometimes there is vertigo and, perhaps, distress in the chest, particularly at night, and this is often accompanied by a smothering sensation, dyspnea.

The study of the pulse is interesting and instructive, but the sphygmographic tracings are not always satisfactory. In the first stage the pulse is weak. In the second it may be full and frequent and hastened by exercise: it is irregular or variable or jerky, intermittent and generally dicrotic. If the strain has been felt on the right side of the heart, chiefly, little is indicated by the pulse, except cardiac asthenia. In these patients we often see tremulous movements in the costal margins, or in the sixth or seventh intercostal spaces, which are easily felt by palpation. They are likely to be present in dilatation of the right ventricle, while they may be present in dilatation of the left.

Auscultation in the first stage is not always satisfactory, no signs being indicated except those of asthenia. In this stage there are no valvular lesions, no bruits nor murmurs, except in severe cases where a limb of a valve is ruptured. In the ordinary cases these signs are absent. It is often just as difficult to get a tracing of the radial pulse. It is only after the heart has passed beyond this stage that evidence of organic mischief is present. The systole then becomes very short. The heart contraction is reduced to half the usual time, the time between the first and second sounds is lessened, but a prolongation of the diastolic interval may be observed. The rhythmic movements may vary from 45 a minute in the recumbent position to 150 in the standing position or during moderate exercise.

Over the region where the tremulous movements are seen in later cases there will be heard a loud, rough, systolic sound of low pitch. If compared with the normal ventricular sounds of the left side, the difference may range anywhere from a half to a full tone in the diatonic scale. As a rule, it is heard loudest between half an inch of the left of the costal margin opposite and a little below its junction with the sternum; and again very distinctly anywhere on a horizontal line extending from, and to the right of, the apex (Taylor).

In cases of recovery where the cavity of the right ventricle has almost reached its normal size, this rough sound gradually passes away, so that it may not be observed until the cardiac movements have been extended by exercise, then the pitch will be higher. Should dilatation remain with or without hypertrophy, the rough sound retains its low pitch. If the hypertrophy diminishes the size of the cavity to nearly its normal state, the pitch becomes so nearly like that of the opposite side that it is no longer distinctive. Occasionally pulmonary accentuation is present, especially if the cardiac lesion originated in respiratory trouble. In such conditions of the heart there is more or less venous stasis, circulation in the extremities is feeble, hands and feet may be cold and the color, disappearing under pressure, returns slowly. I have lately seen a case in which there was such general turgescence of the veins of the chest and abdomen that there was a red blush over the entire surface, leaving a white mark upon stroke similar to that characteristic of certain cases of exanthematous rash. In such cases the lips will range in color from a cherry red to a livid hue.

One of the most interesting cases among ex-soldiers that I have examined is the following: During the Civil War the patient had typhoid

fever of medium severity. After convalescence and returning to his company, the command was sent upon a long march. He was overcome by the exertion and heat, became faint and exhausted and fell out of the ranks. He was carried in an ambulance to the camp and recovered in a few hours. Several times afterward he had a similar experience, and always since has had more or less trouble with his heart. At the present time the cardiac area is increased about 20 per cent. There is mitral, tricuspid, and aortic regurgitation accompanied by hypertrophic dilatation. Tremor of the chest-wall involves the entire thorax and extends throughout the body, the pulse thrill being especially observed in the arms. A confusion of sounds exists, a rushing, rasping, blowing over the entire area of the heart, especially marked over the right ventricle, over the apex, and at the right and left second interspaces. It is difficult to separate the sounds. The pulse is visible on both radial and ulnar sides of the wrist. The radial pulse is variable, full, vanishing, irregular, intermittent, with a peculiar tracing. The up stroke or ascent of the sphygmogram is quick and nearly vertical. The apex is a plateau. The down-stroke is characterized by a vibratile motion, but it is unbroken by the recoil or dicrotic wave. It is the sphygmogram of high tension, aortic, and mitral regurgitation. It seems strange that one in such a condition can engage in the ordinary duties of life, yet this pensioner is able to move about at will and does light office work, but he is unable to perform any manual labor. He suffers from frequent attacks of dizziness. Fortunately, compensation has not failed.

Treatment.—The treatment should be prophylactic, hygienic, dietetic and medicinal. Prophylactic treatment in civil life would require elimination of corsets and belts from ordinary dress; a quiet, well-regulated life, avoiding overexertion or any exercise that would produce a profound impression upon the heart. In military life it requires such an adjustment of accoutrements and exercise as will prevent overwhelming the heart in its efforts to carry on the circulation. The proper advice to such persons is to leave the service.

Hygienic treatment involves a well-regulated exercise, fresh air and sunshine, a well-ordered life and avoidance of excesses in any direction, systematic bathing of such temperature and character as will not produce shock, regular meals and sufficient sleep, the avoidance of all dissipation.

Dietetic treatment is particularly needful in advanced cases. All forms of food which have a tendency to the production of gas in the stomach or intestines, and all classes of food which produce digestive disturbances of any kind should be prohibited. The interval between meals should be of sufficient length to permit the complete digestion of one meal before another is taken. In mild and initial cases no change in the diet may be required. Where the work of the heart is excessive, liquids should be limited. Even a small amount of liquid beyond the necessities of the system may work damage by overtaxing the heart.

If blood-pressure is low, liquids should be administered to lessen resistance and increase elimination. Hence, the condition of the pulse tension, the force of the heart's action, and the quantity of urine will serve as guides to the amount of liquid required. Hot water acts as a stimulant in cases of cardiac diseases resulting from strain, and not only washes out the stomach after digestion, but strengthens a flagging heart.

In cardiac asthenia when dilatation is present a dry diet is indicated. It lessens the work of the heart. If the kidney is not involved a nitrogenous diet should be prescribed, as milk, the pulses, eggs and meat, gluten bread, almond meal, etc. If the disease is not of a severe type, other vegetables, such as onions, asparagus, lettuce and tomatoes may be allowed. Supper should be the lightest meal of the day. If patients are thirsty when on a dry diet, hot water may be taken between meals. Sometimes milk and lime-water, lemon-water, or a weak solution of phosphoric acid, will afford relief and may be given. Toast, nut-foods, nuts and fruits often act well. Like dry foods they should be thoroughly masticated. If compensation is failing and digestion is disturbed, the chief reliance is in liquid nourishment. The feedings should be small in amount and frequently repeated. Rest in bed is essential. Sudden dilatation requires rest in bed and a milk diet. Hypertrophy may require rest in bed and a non-stimulating diet. Well-cooked fruits may be given. The bowels must be kept open. If hypertrophic congestion of the liver occurs, some depletion may be required and a diet of milk or whey and soda and lime-water administered.

Before medicinal treatment is begun the cause should be removed if possible. In the first stages little, if anything, more than such management as has already been suggested will be required. In cases, however, where asthenia is present, digitalis and strychnine are the most important remedies; the addition of tonics will restore the tone of the heart and reduce its rhythmic activity. The duration of the treatment must be determined by the condition of the individual case. It will depend, somewhat, upon how the organ responds to the treatment; but so long as dilatation exists they cannot safely be stopped. If for any reason, however, these agents do not act well, some substitute for them must be found. There are two substitutes for digitalis which may be used alternately with that remedy, or in place of it, as circumstances may demand; these remedies are convallaria, strophanthus, and in some cases caffeine. Sometimes it may be found necessary to substitute nux vomica and other tonics for strychnine, but I have found that in most cases strychnine may be given, though occasionally small doses may be required. For hypertrophic overaction aconite is often useful, but it should be used with great caution. Gelsemium and aconite are sometimes required as cardiac sedatives. For distress at night, belladonna, hyoscyamus and can-

nabis indica are valuable remedies. Occasionally bromide of potassium or bromide of sodium and codeine may be required, though usually it is better not to use these preparations nor opium. Tonics and digestants may be of service in some cases. The treatment is that usually required in such cardiac conditions. Complications may necessitate a modification of treatment.

ON THE ACTION OF DIGITALIS.

BY ARTHUR R. CUSHNY,
OF ANN ARBOR, MICH.;
PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS IN THE UNIVERSITY OF MICHIGAN.

AT THE end of the eighteenth century two important innovations were introduced into medicine by physicians practising in two neighboring counties of the west of England, the digitalis treatment of dropsy by Withering of Birmingham in 1785, and vaccination by Jenner of Gloucester in 1798. The sponsors of these methods derived their ideas from the same source, the popular medicine of the locality, and each worked in silence on his topic for many years before venturing to lay it before the medical profession.

The importance of Jenner's discovery has given his name a world-wide fame, but is it just that that of Withering should be known only to a few students? In his treatise on the subject he states that digitalis had been used by himself and his friends for ten years and gives the histories of over two hundred cases. He failed to recognize that digitalis acts chiefly on the heart, but differentiated between true dropsy and what appear to have been cases of ovarian cyst and states that in the latter digitalis produces little or no amelioration. After the appearance of Withering's paper, digitalis seems to have attained immediate popularity, though its position was afterward endangered by use in many forms of disease in which it could have been of no benefit. In 1830 it was generally recognized that its chief usefulness lay in the sphere of cardiac disease and soon afterward the first experiments were made on animals in order to ascertain its action on the circulation (Blake, 1839). A more serious attempt to elucidate its action was begun by Traube in 1851, and since then it has formed the subject of a large number of investigations.[1] Of late years more accurate methods of investigation than were at the disposal of the earlier workers have thrown much light on the action of digitalis; but before these are considered it may be well to discuss what are the active principles of the drug. Schmiedeberg in 1882 found three bodies in digitalis which acted in the same way on the heart and which he named *digitoxin, digitalin* and *digitalcin.* These were accompanied by other inactive bodies, the chief of which he named *digitonin.* More recently Kiliani has confirmed Schmiedeberg's findings and added another glucoside, *digitophyllin,* which resembles digitoxin in many features. All of these he showed to belong to the group of glucosides, and all of them are contained in the ordinary preparations of digitalis.

For nearly forty years after Traube's first experiments the only method employed in the examination of the effects of digitalis on mammals was the registration of the blood-pressure by means of the mercury manometer. This however does not permit a sufficient analysis of the changes in the heart; and although it was supplemented by direct examination of the frog's heart and by the registration of its movements under digitalis, it was felt that no direct inferences could be drawn as to the changes induced in the human heart. As a matter of fact, the reaction of the cardiac muscles in the frog under digitalis differs in some essential features from that of the mammal, and I shall therefore pass over the results of these experiments. The experiments performed on mammals with quantities of digitalis equivalent to those used in therapeutics showed two chief features, (1) the slowing of the pulse, (2) the rise in the blood-pressure. The slowed pulse is due to increased activity of the cardiac inhibitory apparatus, chiefly of the inhibitory center in the medulla oblongata. The increased blood-pressure is due in part to an increase in the amount of blood expelled by the heart, in part to contraction of the peripheral vessels, which increases the resistance to the current of blood from the larger arteries to the capillaries. It was further shown that the pulmonary vessels are much less affected than the systemic arteries; in fact, it may be questioned whether digitalis induces any contraction of the pulmonary arterioles.

During the last ten years, efforts have been made to obtain a deeper insight into the changes in the heart under digitalis, and it is gratifying to find that the most diverse methods of examination have given results which are in complete accord as regards all important features. These experiments vindicate for digitalis and its allies an action on the heart which is altogether different from that obtained by means of any other drug used in therapeutics. The slow pulse and the increase in blood-pressure which were observed by the manometric experiments are, on the other hand, induced by many other drugs, such as strychnine and often caffeine. The administration of therapeutic doses of digitalis to animals was found to be followed by slowing of the heart, an increase in the strength of its contractions and an increase in the dilatation. The slowness of the pulse is due to the heart's spending a longer time in rest between the contractions, or, as it is generally stated, to a prolongation of the diastolic pause. This slow pulse is not due to any direct action on the cardiac muscle fibers, for it disappears when the inhibitory mechanism is paralyzed by the injection of atropine. It proves, as has been already stated, to be due for the most part to stimulation of the inhibitory center in the medulla oblongata.

[1] For the bibliography of these see a paper by the author in the Jour. of Exp. Med., II., p. 233, 1897.

The increase in the dilatation of the heart, that is, of the relaxation of the muscle fibers, leads to the heart attaining a larger size in diastole than before the drug was administered; the heart therefore allows more blood to enter its cavities than before. This feature is less constant than are the others, and in my experiments it appeared to be more marked in hearts that were normal to begin with than in those that were already dilated before the drug was injected. The increased dilatation, like the slowing of the beat, proved to be due to inhibitory action and not to any direct action on the cardiac muscle. When the inhibition was removed by atropine, the heart resumed its normal rate of beat, or a faster one, and the relaxation of the muscles was the same as, or less than, that before the injection. The only marked feature that remained was the increase in the strength of contraction, which has thus a different origin from the slowing of the heart and increased dilatation, and which must in fact be referred to a change effected in the cardiac muscle itself. This increase in the strength of contraction naturally resulted in the heart attaining a smaller size at the end of systole than before the drug was administered; in other words, there was less blood remaining in the ventricle at the end of systole. It is now generally recognized that the ventricle does not empty itself completely at each stroke; there is always a smaller or larger amount of blood remaining over after the contraction, and before the inflow from the auricle begins. This action of digitalis is not confined to the ventricle, but extends to the auricle, and both right and left hearts undergo the same changes in rate, strength and dilatation. Roy and Adami pointed out, before my experiments began, that the papillary muscles are also involved and contract more strongly than before; in fact in some of their work the changes in the papillary muscles were much more marked than those in the ventricular walls proper. The greater strength of the contraction of the walls naturally leads to an augmented pressure in the interior, which has been demonstrated experimentally by Kaufmann, Rolleston and others.

The heart may be regarded as a complicated pump and its state of efficiency may be measured in the same way as that of a mechanical pump by the discharge per minute. Now, the experiments just detailed showed that the ventricle contained more blood at the beginning of its contraction and less at the end under digitalis than in normal conditions. Each stroke of the pump thus expelled more fluid than before; but there were fewer strokes per minute and it thus appeared possible that, although the contractions were stronger, the actual efficiency as measured by the output per minute might be lessened. As a matter of fact, further experimentation convinced me that after therapeutic doses the output per minute was larger than before, the slowness of the pulse proving insufficient to counterbalance the increase in the amount discharged by each contraction. The increase in the efficiency amounted to from twenty to thirty per cent. in normal animals. When larger quantities were given and poisoning was shown by the extreme slowness of the heart, the output fell to below that observed before the drug was administered.

Further advance in the methods of experimentation in the last few years has led several independent investigators[1] to examine the effects of digitalis on the mammalian heart when isolated wholly or partially from the body. These experiments permit only the direct action on the cardiac muscle, for the inhibitory center is destroyed and the slowing and increased dilatation are therefore entirely lost. The results confirm in the most satisfactory way those which I have described as occurring in an animal with its inhibitory mechanism put out of action. The contraction of the heart is stronger, the pressure in its interior is higher and the amount expelled at each beat is larger.

Do these changes observed in the hearts of the lower mammals suffice to explain the therapeutic effects of digitalis? The most general statement of the conditions in which digitalis proves of value is a displacement of the blood. Instead of being distributed in the arteries and veins in the normal proportions, it is lodged in larger quantities in the veins, while the arteries are only partially filled and the pressure in their interior is low. To return to the analogy of the pump, the piston refuses to rise sufficiently and the water remains in the well. In order to improve the condition, the efficiency of the pump must be improved; that is, the amount of blood discharged must be augmented. And, as we have seen, this is the effect of the cardiac action of digitalis. The accumulation of the blood on the venous side of the circulation leads to starvation of the tissues of the body, manifested by degeneration in such organs as the kidney and liver and in the vascular walls, which leads to dropsy and edema. Among the organs involved in the malnutrition is the heart itself, so that a vicious circle is formed, the inefficiency of the heart leading to malnutrition and this in turn lessening the strength of the heart and increasing the inefficiency. In such a case the heart muscle becomes flabby and the cavities are dilated; the contractions are often frequent but feeble, and but little blood is expelled by each beat. The primary cause of the condition is often disease of the valves and consequent regurgitation, but even when these are sound they become involved in the general disorder; for the papillary muscles and the muscular base of the valves partake in the prevailing relaxation of the cardiac muscle and the valves are accordingly not supported against the pressure put on them in systole.

The effects of digitalis on the heart muscle are exactly those adapted to counteract this condition. The contraction is increased in strength and probably the dilatation is slightly increased in diastole, although this is much less marked in

[1] Gottlieb. Verhandlungen des XIX. Congresses für inn. Med. zu Berlin, 1901, p. 25.

the dilated heart than in a normal one. The increased contraction augments the output of the heart and raises the pressure in the arteries, thus accelerating the flow through the capillaries. The increasing pressure in the veins promotes the return of the blood to the heart and lungs, whence it again returns to the arteries. The quickened circulation supplies a more adequate supply of food and oxygen and improves the nutrition of the vessels and organs and, chief among these, of the heart itself, which becomes equal to its task of pumping the blood from the venous to the arterial side. In many cases, however, the heart is permanently injured, as when a valve is shrunken by cicatricial tissue. Here the work required is far in excess of that demanded of the normal heart, for part of the energy expended in contraction is wasted in driving the blood backward instead of forward. In such a case the heart muscle has a special burden to carry in order to maintain the equilibrium, and, as in the case of other muscles subjected to a continual strain, it increases in bulk. The hypertrophy of a muscle can occur only when it is put in the most favorable conditions of nutrition and the hypertrophy of the heart is induced not through any direct stimulation of the growth of the muscle by digitalis, but by its nutrition being improved by the changes in the circulation, which are sufficiently explained by the increased contraction of the muscle fibers. Another explanation of the hypertrophy is based upon the inhibitory stimulation; the slowing of the heart is said to allow the organ more time for rest and reconstruction. But this seems contrary to experience in the hypertrophy of other muscles, for the blacksmith's arm is not increased in size by his giving it rest and the hardness of an athlete's muscles is only maintained by constant training. Again, it has been suggested that the inhibitory fibers are really the trophic nerves of the heart, and that the increased activity of this mechanism is sufficient to explain the hypertrophy. But apart from the doubt which may reasonably be entertained regarding any explanation based upon trophic nerves, the increased inhibitory activity is not sufficient to explain the phenomenon; for other drugs resemble digitalis in stimulating the inhibitory apparatus, while no hypertrophy results from their use. I need only cite the example of aconite, which increases the inhibition in exactly the same way as digitalis, but has no effect on the cardiac muscle in therapeutic doses. Amongst the many virtues credited to aconite, I believe hypertrophy of the heart has not been claimed hitherto, but if the hypertrophy under digitalis is due to inhibition, then aconite ought to be classed as a substitute for it.

One of the most marked features of the therapeutic action of digitalis is the slowing of the pulse. This is certainly due in large part to the stimulation of the inhibitory function and in those cases in which the frequency of the pulse is a marked symptom the inhibition may be a useful adjunct to the more essential action on the cardiac muscle. But it must be added that the slower beat is not uniformly a benefit, for the chief object of the administration of digitalis is to increase the output of the heart, and the infrequency of the contractions may sometimes almost counterbalance the greater discharge by each. The acceleration of the pulse which is so often a feature of dilatation and malnutrition is probably a manifestation of irritability of the excitomotor part of the heart. An insufficient supply of nutrition is often the cause of increased activity in other organs and the heart may well be excited to frequent contraction by the general stasis of the blood. The return to the normal rate induced in many cases by rest, when fewer claims are made on the heart, and the continuance of the normal pulse after digitalis has been discarded certainly suggest that, like the dilatation of the cavities, the rapid heart-rate in cases of inefficiency is due in large part to malnutrition. So that, although it is practically certain that the slower pulse observed when those cases are treated with digitalis is primarily due to the inhibitory stimulation, the improved nutrition of the heart must also favor a return to the normal.

In many instances of digitalis treatment, a remarkable improvement takes place in the regularity of the pulse. This has also been credited to the inhibitory stimulation, and I am not prepared to deny that this may share in the effect. But here, again, the direct cardiac action in increasing the food and oxygen supply may play a more important rôle than has generally been recognized. The most extreme form of irregularity of the heart is that known to physiologists as *delirium cordis*, which, unlike the delirium of the clinicians, is immediately fatal. In several cases Gottlieb observed this in excised mammalian hearts and was able to arrest it by digitalis. In these experiments there could be no question of inhibitory action, for the heart was severed from its nervous connections, so that the direct cardiac action alone could come into play. The nutrition was also unaffected, for the blood was not driven through the coronary arteries by the heart, but by mechanical pressure which remained constant through the experiment. The improvement must thus have been due to some unknown change in the cardiac muscle induced by digitalis. But little is known as to the cause of clinical irregularity, although some contributions to our knowledge made in the last few years indicate that it may be due either to excessive irritability of the auricle and ventricle or to the failure of these to respond to impulses emitted by the excitomotor apparatus or to failure of the last to send out a contraction impulse. Whether these different forms of irregularity are equally amenable to digitalis can be decided only by the comparison of a large number of pulse tracings before and after the administration of the remedy.

The third point at which digitalis affects the circulation is the muscular coat of the arterioles, which contract and tend to keep the blood on the arterial side instead of allowing its accumula-

tion in the great veins. This may undoubtedly aid the action on the heart in cases of cardiac inefficiency and may perhaps justify the persistent adherence of the profession to digitalis in these cases in spite of the claims of strophanthus, which is practically devoid of this vascular action. In cases in which the effects on the heart are to be elicited with as little increase in the arterial tension as is possible, strophanthus is to be preferred, however. Or, digitalis may be given with a vasodilator such as nitroglycerin. When the latter is employed, Marshall[1] advises that the first dose of digitalis precede that of nitroglycerin by several hours, as the latter acts much more rapidly and may induce a considerable fall in blood-pressure before the cardiac action of digitalis has commenced.

Digitalis is not used so frequently now as formerly in cases of internal hemorrhage, but a few lines may be devoted to this subject. The ground for this application was the contraction of the peripheral arteries, which, it was supposed, would narrow the orifice and lessen the escape of blood. But more blood is expelled from the heart than before, and more must escape through the vessels, so that, even though the ruptured vessel be narrowed, no corresponding diminution of the hemorrhage is to be anticipated.

BACTERIOLOGICAL DIAGNOSIS OF TYPHOID FEVER.

BY HENRY A. HIGLEY, M.D.,
OF BROOKLYN, N. Y.

The methods available in the bacteriological laboratory for the establishment of the existence of any disease produced by a given micro-organism are three in number: (1) The isolation and identification of the micro-organism producing the disease; here we receive the microbe from the body of the diseased person; we isolate; we grow it upon our artificial media and subject it to the tests which shall establish its identity; (2) the application of certain staining reactions to the micro-organisms received from the diseased persons, which reactions are peculiar to these micro-organisms and shall differentiate them from all other micro-organisms; (3) the effect or reaction produced by certain body fluids of persons suffering from bacterial diseases, when these fluids in certain dilution are brought into contact with micro-organisms of the same species with which the person is infected, which micro-organisms have been artificially cultivated in the laboratory. Such a method is the Widal reaction.

It is a self-evident fact that of these three methods the first is by far the most positive and absolute, because here we take the micro-organism from the body of the diseased person; we cultivate it upon artificial media and subject it to a number of tests, the physical and chemical nature of which we in most cases clearly understand, in order to establish its identity. The chances, therefore, that we may make a mistake in regard to its identity are reduced to the very minimum and are not worth serious consideration. The second method comes next in value because of its simplicity, the ease with which it may be employed by the clinical practitioner, and its reasonable certainty. It can never, however, be considered as sure as the first method, because here we submit the organism to one kind of a test only, namely, a staining reaction. The chances, therefore, that we may make a mistake with regard to its identity are greater than in the first method, in which we employ several kinds of tests for this purpose. The third method is the most insecure of the three. This is so because we really understand very little from a scientific standpoint in regard to the ultimate factors which control these reactions. In the first place, we do not know what the substances are in these body fluids which give rise to these reactions. We say that there are such substances and we call them by certain names, but they have never been isolated; we know nothing of their ultimate chemical composition; we do not know how or whence they are produced nor the conditions, from a scientific standpoint, which limit their production on the one hand and their non-production on the other. Our entire knowledge in regard to their production is mere speculation derived from insufficient and often conflicting experimental data.

Let us now consider the application of these methods to the clinical diagnosis of typhoid fever. In this connection I purpose to invert the order in which they have been given and consider first the third method, namely, the Widal reaction, because it is the one about which I shall have the most to say and also because of its widespread use at the present time. Lest anyone should form a misconception in regard to my opinion of the value of the Widal reaction as a means for the diagnosis of typhoid fever, I want to say that I believe its value as such a means cannot be overestimated. It is nevertheless to be remembered that its true value, its great value, can only be fully appreciated when one takes into consideration the limits within which such value exists.

The Widal reaction, what is it? It is simply and solely a laboratory systemic symptom of typhoid infection. To be more explicit, it is the effect produced when the dried blood or blood-serum of a typhoid patient is brought into contact with artificially cultivated typhoid bacilli (I leave out of consideration here the fact that other substances, as well as various other body fluids of those sick with typhoid, will produce this same result). The effect thus produced is as follows: These typhoid bacilli, which exist singly in suspension in the artificial fluid media and possess motility, become, in a variable time, in greater or less number massed or clumped together and remain thus massed, losing their motility. The free organisms, those which do not mass together, if there are any, either entirely

[1] Jour. of Physiology, XXII., p. 1.

loose their motility or have it but little, if any, affected. I make this statement advisedly because it is a fact that there does not exist to-day in the minds of the best men a uniformity of opinion as to what really constitutes a Widal reaction of standard clinical value. The points of difference in the opinions of such men are as follows: (1) As to whether the free organisms, if there are any, need or need not lose their motility; (2) in regard to the degree of dilution of the blood or serum which must produce the reaction; (3) in regard to the time within which the reaction must be produced after the elements are brought together in the laboratory. There are those who tell us that in addition to the clumping the motility of all the free organisms must cease; that this result must be produced with at least a given dilution of the blood or serum, and that this must take place within a given time after the elements are brought together. On the other hand, there are those who hold that, in the very nature of things, one cannot lay down any hard and fast rules up to which this reaction must measure, in all cases, in order that it be of standard clinical value, but that there are certain limits within which the reaction may take place and yet be of standard value. These point out that the conditions in typhoid, both systemic and local, are due principally to two factors, (1) the degree of virulence of the infecting organism, and (2) the peculiar individuality and susceptibility of the infected person. These factors are, however, variable quantities. To suppose therefore that any condition, either systemic or local, must in all cases measure up to certain absolute standards in order to be of standard clinical value is illogical. In our present state of knowledge the latter view is certainly the one to be preferred.

A satisfactory conception of the clinical value of the Widal reaction, together with its correct application to individual cases, can only be obtained by a consideration of the vital factors which govern its production. These are five in number and may be considered under the following questions:

1. *What Are the Substances Which Produce These Reactions and Whence Do They Come?* The final answer to this question is very easy—we do not know. The latest and what I believe to be the best hypothesis in regard to them is as follows: These typhoid bacilli contain in their bodies, probably in their cell membranes, a peculiar albuminoid substance called the "agglutinating" or "agglutinable" substance. When these organisms enter into the human economy and the vital reaction is set up, the body by means of its cells, probably the leucocytes of the blood, produces a substance, perhaps in the nature of a ferment, called "agglutinine;" this substance, acting upon the peculiar albuminoid substance in the bodies of the organisms, produces a coagulation of the latter and causes the bacilli to clump or "agglutinate." The whole process then, is one of protection on the part of the body in answer to an existing infection. In regard to the ultimate chemical composition of these substances we know practically nothing. We do know, however, that they may be locked up with one or all of three constituents of the blood, (*a*) the fibrin or fibrinogen, (*b*) the serum-albumin, (*c*) the serum-globulin. When one or all of these substances, as the case may be, are removed from the blood, it loses its power to produce this phenomenon.

2. *When and Under What Conditions Are the Substances Produced and What Relation do They Bear to the Disease?* That is, (*a*) are they present early or late in the disease? (*b*) When once present do they remain present and for how long? (*c*) What relation do they bear to the immunity produced in the disease? (*d*) What relation do they bear to the virulency of the infecting bacilli and to the susceptibility of the infected individual?

a. They may be present either early or late or not until convalescence is established. Figures show that in the first week they are present in about 20 per cent. of cases; in the second week, in about 60 per cent.; in the third week, in about 80 per cent., and in the fourth week in about 90 per cent. From this the important fact follows that the demonstration of their absence on any given day proves absolutely nothing against a positive diagnosis of typhoid fever. This statement, however, needs a little qualification, which will be given later.

b. When once present they usually do remain present throughout the disease and on into convalescence, as a rule disappearing in the first weeks following recovery, but occasionally remaining for months and even years. It is perfectly possible for them to be present on any given day or succession of days and then to disappear suddenly never to return again. From these facts two important considerations follow, namely, the demonstration of their absence on any given day in a fever is not proof positive that they have not been earlier present, and it is necessary to ascertain whether or not the person has previously had typhoid in order accurately to interpret results.

c. The majority hold that they do not bear any relation to immunity, because they are often present in the early days of the disease when it is conceivable that any degree of immunity exists. There are those, among them Pfeiffer, who hold that they do bear a relation to immunity because they are present with greater frequency in the later days of the disease when some degree of immunity has been acquired. Exactly where the truth lies in this respect, it is at present impossible to say, but it does not seem probable that they are in any way related to immunity.

d. They are present in mild as well as in severe cases, in cases which recover as well as in fatal cases. The rule here is that the milder the case the less pronounced is the reaction, but there are many exceptions. Very many mild cases

give early and pronounced reactions and some severe cases give a delayed and feeble reaction or no reaction at all.

3. *What Are the Conditions, if Any, up to Which the Laboratory Organisms Employed in the Test Must Measure in Order that the Result Shall Be of Standard Clinical Value?* In regard to most of the points under this head we are to-day practically in accord. We believe that the organism should be in young culture, not over twenty-four hours old, and that it should be actively motile. Some favor ordinary nutrient bouillon as the culture medium to be employed for its growth while some prefer other media. None of the best men, so far as I know, hold that we should use very virulent micro-organisms, because there are certain substances present in non-typhoid blood which give with these markedly virulent organisms confusing reactions. There are those, however, who hold that we should use micro-organisms of a medium grade of virulence and others who claim that only greatly attenuated micro-organisms should be employed. The former tell us that if we use only greatly attenuated micro-organisms we elicit positive reactions in a greater percentage of non-typhoid cases than when we use micro-organisms of a medium grade of virulence. The latter claim that if we use only micro-organisms of a medium grade of virulence we fail to produce a positive reaction in a greater proportion of cases of genuine typhoid than when greater attenuated micro-organisms are employed; thus, the full clinical benefit of the reaction is lost. Exactly where the truth lies in this respect it is impossible with our present knowledge to say.

4. *Are the Agglutinating Substances Present in Atypical Cases of Typhoid with Equal Frequency as in Typical Cases?* We know that in cases of typhoid which come within the typical class these substances are present at some time during the disease in the vast majority of cases. Different sets of statistics vary all the way from 88 per cent. to 99 per cent. of such cases. The question here is *not,* What does the presence of these substances, in sufficient amount, mean in atypical cases? but the question is, Are they present with equal frequency in atypical and typical cases and so available for diagnostic purposes? I believe that before we can decide this question it is necesary that a considerable number of cases should be worked out along certain lines, as follows: We must show atypical cases of fever which give a positive Widal reaction in a high dilution and then either by isolating the typhoid bacillus during life or by following the case to the autopsy-table and there, by the pathological lesions or by isolating the typhoid bacillus, prove that we are dealing with typhoid infection. Literature contains comparatively few cases that have been so studied. It has been the custom in atypical cases of fever which persistently refuse to give a positive reaction to negative a diagnosis of typhoid. Whether we have been justified in so doing cannot be determined until more knowledge is obtained.

5. *Are Specific Agglutinating Substances Present in Conditions Other than Typhoid and in Normal Blood?* We know that they are. In other diseases the figures vary from 1½ per cent. to 19 per cent. The practical point, however, is that in these instances they are not present in anything like the amount in which they occur in typhoid infection, so that in order to produce a positive reaction it is necessary to use a very much lower dilution of the blood or serum. We thus produce a positive reaction in quite a percentage of other conditions when we use a 1 to 5 dilution, a less number when we use a 1 to 10 dilution, still less when we use a 1 to 15 dilution, and only very rarely when we use a 1 to 20 or 25 dilution.

In regard to the time within which the reaction must take place after the elements are brought together in the laboratory, we find that the views of the best men vary all the way from fifteen minutes to two hours. It is necessary in practice, however, to have some guide and it seems probable that thirty minutes is a safe and fair limit.

With respect to the technic of the reaction there are two points which deserve special mention.

1. *Making the Dilutions.*—Since the clinical value of this reaction is essentially one of dilution I hold that too much care cannot be taken in this respect. For this reason I personally discard the so-called dried blood method in which the degree of dilution is gauged by the shade of color produced when the dried blood and diluting fluid are brought together, one carrying in his mind's eye a different shade of color for each dilution; or the dilution is produced by adding to the drop of dried blood a certain number of drops of the diluting fluid and thoroughly mixing them together. I do not believe that with such a technic one can form any more than a very moderate opinion in regard to the degree of dilution with which he is working. This dried blood method has come into use chiefly because it was thought to be an easier clinical proposition than were the older methods of securing the serum by means of a blister or puncture. If, however, one will employ capillary tubes it will be found just as easy to collect the blood in these as it is to obtain it on a slide and let it dry. No more blood is required and the puncture does not need to be any deeper or more painful and in addition one has the satisfaction of knowing that he has the serum in a position to be used with great accuracy. In making the dilutions the most common practice is to use the looped needle, but in so doing we fall into inaccuracy. It is impossible to get off from the needle the same amount of fluid every time, so that one has a succession of drops of different sizes and the result is that the dilution is inaccurately made. By the use of the capillary pipette this error may be very largely obviated.

2. *The Avoidance of So-called Pseudo-Reactions.*—These are principally brought about by three causes: (*a*) When clumps of fibrin or for-

eign material present in the blood are brought into the presence of the micro-organisms, these attach themselves to such clumps, the appearance of an actual reaction being produced, when in reality only a pseudo-reaction has taken place. (*b*) Too many bacilli are often present in the microscopical field. They cannot move about with freedom and cause a confusing appearance. (*c*) In the bouillon culture there may be present bacilli attached together in masses; these when mixed with the serum and placed under the microscope lead us to suppose that a positive reaction has occurred. The first two of these sources of error may be practically entirely overcome if the technic with the capillary tube is employed. The chances of fibrin or foreign material being drawn up into such a tube are very few and experience shows that the number of organisms so entering is just about the number required. In regard to the third source of error, this may be very easily obviated if one will take a drop of the bouillon culture, examine it under the microscope and then, if it is found satisfactory, use this *same* drop to produce the reaction.

In considering the application of the Widal reaction to the diagnosis of typhoid fever, it is obvious that in any given case one of two results will be apparent, its absence or its presence.

1. *Its Absence.*—The absence of a positive reaction on any given day in a typical or atypical typhoid fever proves nothing against a positive diagnosis. If we can show by a sufficient number of observations that a positive reaction has never occurred, or that in the fourth or fifth week of the fever it is absent, we undoubtedly have a point of certain weight against a diagnosis of typhoid, but that such a result negatives a diagnosis of typhoid fever is absurd.

2. *Its Presence.*—We may have its presence in cases which are clinically typical or atypical of typhoid.

a. Typical Cases.—Its presence in typical cases (and by typical cases I do not mean cases which present all the typical symptoms of typhoid, but a sufficient number to be considered within the typical class) in a 1 to 10, 15 or 20 dilution probably throws enough weight on the side of typhoid fever to make a positive diagnosis justifiable.

b. Atypical Cases.—I believe that just so long as we know that there are conditions other than typhoid which give a positive reaction in a 1-10, 15, 20 or 25 dilution, we must show in atypical cases of fever a positive reaction with a dilution higher than these in order to justify a positive diagnosis of typhoid infection. If we are unable to do this and are only able to show a positive reaction in the low dilutions mentioned we must control the case by other laboratory factors in order positively to diagnose typhoid. Failing to do this we must say that a probability only of typhoid infection exists.

In regard to the second method available in the bacteriological laboratory for the establishment of the existence of any disease produced by a given micro-organism, namely, that of the staining reaction, this can be disposed of with respect to typhoid fever in one sentence. No stain has as yet been discovered which is able to differentiate the typhoid bacillus from other organisms.

We now come to the third method available for diagnostic purposes—the isolation and identification of the specific micro-organism. I do not propose to take up all the methods for isolating and identifying the typhoid bacillus. Some of these yield very good results, but others are not to be recommended because of the narrow limits within which they are applicable. I shall explain in detail only one method, the Hiss method, because of its wide range of application at all seasons of the year and because, when competently handled, it is second to none in its ability to differentiate the typhoid bacillus from all other organisms. Before considering this method it is necessary to consider briefly isolation methods in general. Isolation methods in general when applied to typhoid fever and particularly to typhoid fecal matter possess one great disadvantage. Typhoid bacilli when present in voided fecal matter remain alive only for a very short time, or if they do not perish they lose their original characteristics, so that they cannot be isolated by any method at present known. The length of time that they do remain alive or retain their original characteristics is very variable, depending no doubt upon the different nutrient conditions which surround them. This time varies in most cases from a few hours to a few days, probably nearer the former than the latter. This fact renders it necessary that fecal matter should be examined within a very short time after it has been voided by the patient and largely limits the use of all isolation methods in public laboratories where specimens are, of necessity, received under all conditions and where it is practically impossible to subject them to examination within a short time after they have been voided by the patient.

The Hiss method consists in the use of two media—one known as the "plating medium" and the other as the "tube medium." A tube of the "plating medium" is liquefied by heat and then cooled down to a temperature which will not injure the micro-organisms which are about to be introduced into it, but which still leaves the medium in a fluid state. The fecal matter, having been previously emulsified in sterile bouillon, is then introduced by means of a sterilized looped platinum needle into the fluid "plating medium" and by a twisting motion of tube equally distributed throughout it. Dilutions are then made from this tube into other tubes of the "plating medium," which has been previously fluidified by transferring a small portion from tube No. 1 into tube No. 2 and from tube No. 2 into tube No. 3. This is done in order that the organisms may be well separated, so that the colonies will not be too closely packed in the "plates" which are to be made. The contents

of each tube is then poured into a Petri dish which has been previously sterilized by heat. The medium is allowed to harden in these dishes, which are then placed in the incubator at 37.5° C. for sixteen to twenty-four hours. At the end of this time we find that the single organisms have been held in position as the medium hardened and have developed into colonies. There are, of course, many such colonies on any given plate. If typhoid bacilli are present they make their presence known in the formation of peculiar thread-forming colonies of a light-green color, while other organisms grow in non-thread-forming colonies. It is not claimed that this is always the case—that is to say, that typhoid bacilli never form non-thread-forming colonies and that other micro-organisms never form thread-forming colonies. If this were always the case, no second medium would be necessary for the complete isolation and identification of the typhoid bacillus. It is claimed, however, that in any given case a sufficient number of typhoid bacilli give rise to these thread-forming colonies, so that if these organisms are at all present they will be detected. To meet the contingency mentioned the "tube medium" is brought into play. These dishes are uncovered and placed upon the stage of the microscope; by means of a sterilized platinum needle a number of these thread-forming colonies are "fished" and transplanted into this "tube medium" by means of a "stab inoculation." These tubes after having been thus inoculated are incubated for sixteen to twenty-four hours. If the micro-organism which has been thus transplanted is a typhoid bacillus there occurs a diffuse cloudiness evenly distributed throughout the medium or a greater portion of it without the production of gas either free or evolved by stirring. If the micro-organism is not a typhoid bacillus it does not cause such a diffuse cloudiness and may or may not produce gas.

It is claimed that any micro-organism which responds characteristically to both of these tests is a typhoid bacillus and will respond to any test known for that organism. If any man thinks he has obtained results other than this I would like very much to see the organism with which he is working, for I believe that if such a result has apparently been obtained it is due to the fact that the media which has been employed has not been properly made. This leads me to the next point. The chief objection which has been raised to this method is that it is a very difficult one to pursue; that, in particular, the "plating medium" is a hard one to make. The reason that it is regarded as a difficult medium to make grows out of the fundamental conditions which exist in bacteriological laboratories to-day. It is a fact that there does not exist a uniformity of methods in different laboratories with respect to the manufacture of artificial culture media. To no one point does this apply with greater force than to the method employed for regulating the degree of acidity or alkalinity of such media, and, what is more important still, to the production of the normal acid and alkaline solutions by the means of which such a degree of reaction is produced. It is no wonder, then, that men working with different methods find difficulty in producing a medium, such as this, the usefulness of which largely depends upon the fact that its degree of acidity must be regulated within narrow limits.

It is also claimed that there are a few species of typhoid bacilli which fail to react to this method. If this is the case—and it has by no means been proven—statistics show that it is so seldom the case that it in no way invalidates the method as a means of diagnosis.

Now, what can we do with this method? Dr. Hiss' statistics show that from the sixth to the thirtieth day in typhoid fever it is possible to isolate the bacillus from the feces in about eighty per cent. of cases. My own experience, which is limited to sixteen cases, is much better than this for in only one did I fail; this was unquestionably a case of typhoid, as shown by the presence of a positive Widal reaction with a 1 to 50 dilution and a characteristic leucocyte-count. I do not hold, however, that it is as infallible a method as my statistics would show, for I believe that my results have been somewhat due to good luck in that the fecal matter in these cases contained a large number of typhoid bacilli. I want to state, however, that in my cases in all but three the tests were made within three hours after the feces had been voided by the patient. This speedy examination of feces after excretion by the patient I believe to be, in our present knowledge, an essential point in the carrying out of any isolation method.

There are two other laboratory factors available for the diagnosis of typhoid infection which deserve mention. These, although perhaps not strictly bacteriological in nature, are nevertheless too valuable to miss in this connection. We have known for a long time that the leucocyte-count in pure typhoid infection presents certain differences from that which occurs in other infective conditions. Dr. Thayer of Johns Hopkins University has recently taken up this subject and made a very extensive study of it. He shows that in pure typhoid infection, in addition to a hypoleucocytosis, the percentage relationships of the different classes of leucocytes is altered from that which occurs in health or other infective conditions. The polyneutrophilic leucocytes are markedly reduced in number, often falling as low as fifty per cent. The large mononuclears are increased in number, constituting from five to fifteen per cent. The lymphocytes and eosinophiles remain about normal. No abnormal leucocytes are present. A consideration of these facts shows that in the differential leucocyte-count we have a laboratory factor of vast importance in the diagnosis of typhoid infection.

The Ehrlich, or so-called diazo-reaction, I only mention here in order to condemn it as a means in the diagnosis of typhoid infection. It

occurs in altogether too many other conditions to be of any considerable value here. It may, however, be of slight use in connection with a slightly pronounced leucycyte-count or a positive Widal with a low dilution in atypical cases where a patient search for typhoid bacilli in feces and urine has been unsuccessful.

The practical question which now confronts us is, What aid is the laboratory able to render in the diagnosis of typhoid infection? In the consideration of this question I do not propose to outline the methods of procedure most suitable for employment in large public laboratories where work is often necessarily done under great disadvantages, but to indicate the most accurate procedures when put into operation under the most advantageous circumstances and in the most competent hands.

In clinical practice patients with typhoid fever present themselves for diagnosis at various times during the course of the disease. For practical purposes they may be divided into two classes according to the time in the course of the disease that they come under the observation of the practitioner: (1) Patients in the second, third and later weeks of the disease in whom the characteristic symptoms have not developed and where oftentimes the diagnosis must forever remain in doubt unless some aid is invoked other than clinical symptoms. (2) Patients in the first week of the disease in whom characteristic symptoms have not yet developed and where we seek to make an early and sure diagnosis.

In the first class of cases, except from the beginning of the fourth week on, I give preference to the Hiss isolation method. From the fourth week on I give preference to the Widal reaction. I give preference to the Hiss isolation method for three reasons: (*a*) Scientifically it is the best proposition and clinical statistics show that it is the surest proposition. No competent bacteriologist doubts for an instant that the isolation and identification of a given micro-organism received from the body of a diseased person is by far the surest and most absolute way to prove that the person is infected with that micro-organism. Clinical statistics show that we are more apt to isolate the typhoid bacillus from the feces in this class of cases than we are to get a positive Widal reaction. Let us see. Different authors vary slightly in regard to the statistics of the Widal reaction. A fair estimation, however, is as follows: In typhoid fever in the second week we get a positive reaction in about sixty per cent. of all cases; in the third week in about eighty per cent.; in the fourth and later weeks, in about ninety per cent. As previously stated, by the Hiss method the bacillus can be isolated from the feces in about eighty per cent. of all cases. In the second week, therefore, the very time that the vast majority of these cases come up for differential diagnosis, we have a leeway of twenty per cent. in favor of the Hiss method as the surest proposition. In the third week we have an even chance in addition to the fact that scientifically it is the better proposition. In the fourth and later weeks the Widal reaction has ten per cent. advantage and I believe that at this time the Widal is the preferable method. It may, however, be claimed that these comparisons have not been fairly made; that the facts do not show that it is possible to isolate typhoid bacilli from feces in eighty per cent. of cases in the second week, but that this result can be accomplished from the sixth to the thirtieth day. If we draw a comparison on this basis we see that the Widal reaction, giving positive results in sixty per cent. in the second week, eighty per cent. in the third week and ninety per cent. in the fourth and later weeks, gives an average of seventy-six and two-thirds per cent. in practically from the sixth to the thirtieth day. Hence, on this basis we have a leeway of three and two-thirds per cent. in favor of this isolation method, in addition to the fact that scientifically it is by far the better proposition.

b. Clinically it is the easier proposition. I do not know what the experience of other men is, but mine is that it is not always the easiest and simplest thing to get blood from a person sick with typhoid. Of course we can do it and do do it, but when we consider that in order to get out of a Widal reaction what there is to be got it is fairly probable that we shall have to take several blood specimens at various times it does not become the easiest proposition for the clinician to handle. Compare this with the very simple method of obtaining feces. These may be procured when voided without in any manner disturbing the patient and without his knowing that any special research is to be made.

c. From a laboratory standpoint this isolation method is the easier proposition. It takes actually less time to conduct this isolation test than it does to do a Widal as it should be done. The elapsed time, thirty-six hours, is quick enough for all practical purposes. Of course I speak here only in regard to the man who is thoroughly drilled and competent to handle the method. A positive result with the isolation method, of course, means a positive diagnosis of typhoid. Does a negative result negative a diagnosis of typhoid? By no means. In case of a negative result it is necessary to go back and control the case by other laboratory factors, such as the Widal reaction and the leucocyte-count. In this way I believe it is possible to say with great positiveness in this class of cases that a disease is or is not typhoid.

In the second class of cases, those in the first week of the disease in which the characteristic symptoms have not yet developed and we seek to make an early and sure diagnosis, it must be confessed that laboratory aid is of limited service. Isolation tests are useless and in our present knowledge a waste of time. The most valuable methods here are the Widal and leucocyte (differential) count. If we are fortunate enough

to secure positive results we have a diagnosis. It not we must wait until a later time.

Latterly much has been said in regard to the occurrence of typhoid bacilli in the urine during and subsequent to typhoid fever. While it is true that the bacilli are present in the urine in a fair proportion of cases of this disease, observation has shown that they do not appear in this location until the defervescence of the disease has begun. Very often they are not found until the temperature has practically returned to normal. These facts render the bacteriological examination of the urine of little value from a diagnostic standpoint, except in rare cases which are not seen until convalescence is nearly established.

During the last few years numerous endeavors have been made to obtain the specific bacilli from the blood of typhoid patients. In many quarters such attempts have met with marked success, the organisms having been found in from 70 to 83 per cent. of the cases examined. While this procedure as a diagnostic measure strongly appeals to the scientific observer, it is scarcely probable that it will be adopted by the clinician for routine employment, except perhaps in hospital work. For the proper carrying out of this method at least 5 c.c. of blood are necessary. The discomfiture to the patient in obtaining such an amount is a serious obstacle to the employment of this procedure in private practice. It seems certain that its use should be restricted to those cases in which all other methods of bacteriological diagnosis have been tried without avail.

In considering the bacteriological diagnosis of typhoid fever, as applied to individual cases of this disease, one idea should always be borne in mind. There is no one method by means of which a man can sit down in the laboratory and with ease and positiveness make a diagnosis for or against typhoid in all cases. It is only by bringing into play all the factors that the laboratory can control, by taking these and very carefully working them out, and then going back to the bedside of the patient and there carefully intertwining the results with the clinical picture of the case that a man can say in very many disputed cases that a disease is or is not typhoid fever.

MEDICAL PROGRESS.

NEUROLOGY AND PSYCHIATRY.

Rate of Vibration in Ankle Clonus.—It seems possible that some aid in the diagnosis of neurosclerotic conditions may have been rendered by the observations of J. A. MacWilliam (Brit. Med. Jour., Nov. 30, 1901), who, by a system of delicately-arranged tambours and an improved registering apparatus, has obtained much more accurate results than previous observers. Gowers says: "The movement is uniform, from six to nine contractions per minute." Horsley and Herringham observed a frequency of from four to ten. The tracings of MacWilliam in some cases look very much like dicrotic pulse waves; those taken of the quadriceps during a knee-jerk show three or four distinct vibrations of that muscle. These more searching records confirm the observations of Herringham, who noted the tendency to fusion in some tremors. It thus seems more than probable that in ankle clonus the foot movements show only half the real number of vibrations in the muscle, but unfortunately we have, as yet, no definite knowledge as to what relation the cord bears to the rate of vibration.

Treatment of Neurasthenia.—Since this condition results from nervous exhaustion and certain changes take place in the nerve-cells due to their activity, rest is the treatment which is specially indicated. H. C. Patterson (The Med. Times, Nov., 1901) believes that the Weir Mitchell rest-cure modified to suit individual cases is most effectual and that the details are all important. The diet is a difficult problem, but milk modified as koumyss or matzoon, or peptonized milk can usually be taken in small quantities; during the first two weeks the patient should not be allowed to take enough to entirely satisfy his hunger. Cautiously his diet should be increased by the addition of small slices of stale bread, adding, a little later, a small chop or steak in the middle of the day and a nicely boiled egg for breakfast. His diet is gradually built up till he eats three good-sized meals during the day. Drugs are of very little use unless indicated for some special symptom. Isolation and complete freedom from care are most necessary. Massage judiciously begun and electricity should be employed in nearly every case. The faradic current is used, first to the individual muscles, then to the whole body. It will take nearly forty minutes to go over the body systematically, and then a large sponge is applied to the nape of the neck and another to the soles of the feet, allowing the current to pass for twenty minutes. The standard for the success of the treatment is whether the color of the patient is becoming better and the flesh is becoming firmer and the weight increasing. After six or eight weeks, depending upon the severity of the case, the patient should be gradually gotten up again and sent to a quiet resort for a couple of weeks at least. It is well to remember that a rest of ten or twelve weeks is less likely to be followed by a relapse than one of shorter duration.

Action of Toxic Sera upon the Peripheral Nerves.—Certain auto-intoxications are accompanied at times by peripheral neurites. Similar nervous manifestations are also frequently observed during the course or subsequent to various infectious maladies as tuberculosis and diphtheria. In all cases the microscopical lesions have been found to be identical. Wallerian degeneration is habitually present. On account of the clinical and histological similarity of the neurites observed under these conditions it has been thought that, because in those of infectious origin bacterial toxins are responsible for the changes found in the nerve fibers, in auto-intoxications a like rôle is played by poisons, accumulated in the body, due to a functional derangement of the various organs. C. Dopter (Archiv. de Méd. Experimentale, Nov., 1901) by experimental means has conclusively proven this assumption. He finds that certain toxic sera (uremic, diabetic, cancerous, asystolitic and that of Addison's disease) when placed in contact with the peripheral nerves cause alterations in their elementary fibers. These lesions are identical with those caused by bacterial toxins, viz., peri-axilar segmentary necrosis and Wallerian degeneration. The intensity of these changes varies with the serum employed. Sera coming from various uremic, diabetic, etc., patients do not cause lesions of an equal degree of intensity. The serum from the same patient inoculated into different animals produces changes of unequal severity. In general it may be said, however, that the extent of the lesion depends upon the toxicity

of the serum employed. In analogy with these results it seems certain that the peripheral neurites observed in autotoxic conditions are due to retained toxic products in the blood which constantly impregnate the elementary fibers of the nerve trunks.

Nervous Insomnia.—In an interesting pamphlet, T. HEIM discusses the treatment of insomnia as it so commonly occurs in neurasthenia and hysteria. Like most other authors he decries the use of drugs, since they do not produce natural sleep but narcosis during which assimilation is reduced. Sometimes a glass of strong beer or porter will act well and rarely the use of bromides, bromidia, sulfonal or trional may be necessary. The latter two are, however, capable of setting up toxic symptoms, and hedonal and dormiol are preferable. The chief mainstay in the treatment will always lie in the domain of hydrotherapy and here cold packs followed in from one to two hours by friction will be most serviceable. Other measures are cold Preissnitz applications to the abdomen and cold sitz baths. Where the insomnia is accompanied by painful sensations in the back and extremities or where there is also chronic constipation or habitual congestion of the head vibration massage is often a valuable adjunct The same may be said of general faradization, which is usually better than galvanization. Many patients will do well at the seashore, but the severer cases are more rapidly improved in woody or moderately elevated places. A proper resort must be selected for each individual case. In all, a quiet life free from all excitement must be possible. The same may be said of the various watering-places which have been recommended. There remain two further therapeutic measures—hypnotism which is an excellent remedy, though there are many in whom the hypotic trance cannot be induced, and the use of drugs other than hypnotics which must aim to remove the cause of the nervous condition.

PATHOLOGY AND BACTERIOLOGY.

Relation of Renal Disease to the Circulatory System.—The primary effect of kidney disease is obstruction of the circulation in the capillaries and arterioles. Considerable discussion has appeared on whether the cause lay in the contraction of the capillaries or arterioles. W. H. BROADBENT (Practitioner, Nov., 1901) believes that the condition of the capillary contraction controls physiologically the amount of osmosis and following the law of capillary attraction and repulsion the amount of resistance depends largely upon the character of the contained fluid. The retinal hemorrhages present in such small vessels can be due only to increased pressure within them which must be the result of obstruction beyond them, or in the capillaries. A similar conclusion is suggested by a study of cerebral hemorrhages. Given this resistance to the normal flow there must be increased power to drive the blood onward and hence the hypertrophy of the heart. Greater force from behind causes high pressure in the intervening arteries and hence the high-tension pulse. In detecting this change the point to observe is the fulness of the artery between beats, the absence of the sudden subsidence as the wave passes. Constant high pressure later leads to muscular hypertrophy and finally degeneration of the arterial walls and heart, the various symptoms which arise depending upon whether one or the other part of the system gives out first. Broadbent believes that the convulsions are due to high intercranial pressure. Convulsions may occur in association with high arterial tension when there is no renal disease. There does not seem to be any relation between the amount of urea or nitrogenous waste matters in the blood and convulsions. Free venesection is, therefore, strongly indicated in a case of uremic convulsions. Again, he believes that Cheyne-Stokes breathing results from high arterial pressure as it has been an invariable antecedent of this phenomenon, in his experience, whether or not there has been albuminuria. Mercurial aperients, he finds, act best in relieving high arterial pressure. Five grains of calomel or pil. hydrargyri with colocynth and hyoscyamus, given three times a week, act very favorably.

Action of Ferments and Diastases on Tuberculous Poisons.—The action of the various body ferments and diastases upon tuberculous poisons and the bacillus tuberculosis is of interest as a further step in the solution of the tuberculosis question. G. CARRIERE (Archiv. de Méd. Experimentale, Nov., 1901) has taken up this subject experimentally. He finds that ptyalin, pepsin, trypsin and bile act upon cultures of the bacillus tuberculosis by extracting a poisonous substance from the body of this organism. Cultures submitted to the action of these substances possess a greater toxicity than those not so treated. When such cultures are inoculated into tuberculous guinea-pigs they do not prevent the evolution of the disease. They possess no immunizing properties. So far as the bodies of the organisms which are thus acted upon are concerned, he finds that the tulu oil extract of such is very toxic, but less so than that obtained from the bodies of these bacilli which have not been submitted to the action of these substances. Thus these ferments take away a certain portion of the toxins present in the bodies of these organisms. This tulu extract upon animal inoculation possesses neither curative nor immunizing properties.

Tuberculin Reaction as a Method for Ascertaining the Infectiousness of Cow's Milk.—Of late much doubt has been expressed with respect to the value of the tuberculin reaction as an exclusive method for determining the infectious properties, so far as tuberculosis is concerned, of cow's milk. Considerable experimental work has been done upon this subject by Rabinowitsch and Kempner. The most recent work, however, comes from OSTERTAG (Z'tschrift. f. Hygiene und Inf., Nov. 22, 1901). His observations were confined to sixteen cows. These were examined for the presence of the tuberculin reaction and clinical evidences of tuberculosis. The milk was examined microscopically for tubercle bacilli. In every case where the organisms were not thus found the milk was inoculated subcutaneously into guinea-pigs. In this manner it was possible to ascertain absolutely whether or not tubercle bacilli were present. The results show that the milk of cows which distinctly react to tuberculin, but exhibit no clinical evidences of tuberculosis never contains tubercle bacilli and hence cannot be a source of tuberculous infection. Calves and swine may be fed for weeks and months on such milk without developing any signs of tuberculosis. The presence of suppurative udder tuberculosis is the surest guide to the infectiousness of the milk. In all cases where such was present tubercle bacilli were found in the milk.

Contribution to the Biology of the Gonococcus.—It is a well-known fact that the gonococcus ceases to grow well on artificial media if the temperature is only several degrees higher than that of the human body. To ascertain if an increased body temperature will in a like way act detrimentally to the germ, G. NOBL (Wiener klin. Rundsch., Nov. 17 and 24, 1901) examined a number of cases in which gonorrhea complicated other febrile conditions. These were in three cases typhoid, in one pneumonia and in one pulmonary tuberculosis, and the author found that even with 41°

C. numerous gonococci were found in the urethral secretion which were capable of active division on proper culture media. The reason probably is that the latter can never replace the favorable conditions for microorganismal growth which exist in the urethra, despite the increased temperature.

Nature of Amyloid Degeneration.—The various theories concerning the origin of amyloid tissue are given in full by F. BROWICS (Klin-therap. Woch., Nov. 17 and 24, 1901). He himself believes that amyloidosis is due to an infiltration of the tissues with chemically altered erythrocytes or to a heaping up of these owing to slowing of the blood-stream in the capillaries and altered physical properties of the cells that result therefrom. Hyaline degeneration is explained on a similar basis and not regarded as an early stage of amyloid change.

Tumors of the Kidney.—Of the various tumors which occur in the kidney two important classes may be distinguished, according to D. VON HAUSEMANN (Zeitschrift f. klin. Med., Vol. 44, Nos. 1 and 2), namely, those directly renal in origin and those which take their start from displaced suprarenal tissue. Of the first class lipomata deserve only a passing notice since they are small cortical growths of no clinical importance. Papillomata are much more common and are as a rule also unimportant, though they have been known to assume large dimensions and even to invade the vena cava and cause malignant metastases. According to whether the papillæ are poorly or strongly developed, two classes may be distinguished. In the malignant varieties the papillæ are generally long and slender. Adenomatous tumors are very rarely met with in the kidney and many described are in reality hypernephromata, *i. e.*, suprarenal in character. The true adenomata are generally tubular in structure and do not attain a large size, while the hypernephromata are situated near the surface of the cortex, manifest their malignancy by rapidly encroaching upon the surrounding tissue and undergoing fatty degeneration, so that eventually large tumors with soft, yellowish interior and cysts filled with turbid fluid are formed. They may, however, run an extremely chronic course. Though generally sharply circumscribed, they may well destroy the remaining renal tissue by coinpression. Often a very careful histological examination will be necessary to reveal suprarenal structure. They share the property of other malignant renal growths in that they show a tendency to perforate into the renal vessels and inferior vena cava. The following eight points have been given as characteristic for them and distinguishing them from other renal tumors: (1) Their cortical position and macroscopic appearance; (2) their sharp encapsulation; (3) the property of the nucleoli to stain differently from the nuclei; (4) the structure of the cell-protoplasm, dependent chiefly upon fatty inclusions; (5) their similarity to malignant tissues starting from the suprarenals directly; (6) the presence of giant-cells; (7) their tendency to perforate the veins early, and (8) their property to produce glycogen. Endotheliomata also occur in the kidneys; they were formerly classed as hemangiomata and lymphangiomata. True carcinomata may be medullary, more rarely scirrhus or colloid in character, and may remain circumscribed or grow more diffusely when the kidney retains its normal shape, but enlarge considerably. Both forms may penetrate into the renal pelvis, when villous excrescences form which fill this and the ureter and metastases not infrequently form in the opposite organ. Sarcomata are more rare and generally of the spindle-cell type; they tend to infiltrate and the uninvaded renal tissue will often be found to functionate perfectly. Barring only the unimportant fibroid growths, they are the only tumors developing from the stroma. Lastly, mention must be made of teratoid growths which also may take on malignant characters and form metastases.

A New Hemoglobinometer.—The chief disadvantage which is common to all hemaglobinometers in general use is that the colors compared are never exactly of the same tint and hence the reading of the percentage is more or less a matter of guesswork. G. GAERTNER (Münch. med. Woch., Dec. 10, 1901) has constructed a new instrument which he calls hemophotograph which depends upon the principle that the greater the concentration of a solution of blood the more will the actinic rays of the spectrum be absorbed by it and hence the less intense will be the darkening of photographic paper placed underneath the solution and exposed to light. The advantages claimed are (1) comparison of identical tints; (2) great sensitiveness; (3) simplicity of the instrument; (4) permanency of the estimation, since the photographic paper can be added to the patient's history and referred to at a later date; (5) cheapness of the apparatus.

Predisposition of the Apex for Tuberculosis.—Faulty development of the first rib, which, when marked, goes hand in hand with a flattening of the upper half of the thorax and leads to the formation of a furrow near the apex, is considered by L. SCHMORL (Münch. med. Woch., Dec. 10, 1901) as the chief predisposing cause for this portion of the lung to become tuberculous. Owing to the constant pressure there will be disturbances in the circulation of the blood and lymph and poor development, or misplacement of the posterior branch of the apical bronchus will lead to improper ventilation of this part of the lung and hence retention of secretion.

Antiseptic Properties of Uric Acid.—As a result of his experiments, E. BENDIX (Zeitschrift f. klin. Med., Vol. 44, Nos. 1 and 2) comes to the conclusion that the supposed antiseptic properties of uric acid, which are considered to render impossible suppuration and tuberculosis in those afflicted with gout, do not exist, for, on adding either uric acid or the more soluble urate of sodium to cultures of various bacteria, their growth was in no way inhibited. The rarity of tuberculosis in the gouty may be due to the fact that the latter are, owing to their constitution, not liable to become consumptives, and the difficulty with which gouty joints become septic may be explained by the inability of the bacteria and their toxin to penetrate the hardened tissues.

Experimental Hemoglobinuria Caused by a Bacterial Toxin.—The injection into the blood stream of substances which have a solvent effect on the red blood-corpuscles gives rise to hemoglobinuria. A series of hemolysins have been previously described as produced by various organisms, *e. g.*, bacillus pyocyaneus, staphylococcus aureus and albus, bacillus diphtheriæ, streptococcus pyogenes, bacillus typhosus, etc. But the feeble hemolytic action of these pathogenic organisms is masked by more obvious symptoms. A more suitable organism for the study of experimental hemoglobinuria is the bacillus megatherium, which produces substances which are powerfully hemolytic without causing death or serious illness. The hemolytic action of this bacillus was first observed by C. TODD (The Lancet, Dec. 14, 1901), who obtained a culture of the bacillus from hay infusion, another from a sample of papain powder, and a third from Gral of Prague. The three races were grown in Erlenmeyer flasks at 37° C.

and the hemolytic power of the cultures tested daily on a 5-per-cent. suspension of guinea-pigs' washed corpuscles in 0.75-per-cent. saline. The formation of the hemolysin is in the main extra-bacillary; it begins between the second and third days, reaching the maximum on the sixth or seventh day. Oxygen is essential to the formation of the hemolysin, though some growth takes place anaerobically. A high degree of alkalinity favors the production of the lysin. The corpuscles of the guinea-pig and of man are highly sensitive to the lysin; those of the donkey and horse are practically unaffected. In the case of megatheriolysin various normal sera exercise a considerable anti-hemolytic action. The fact that a widely-distributed organism, which has hitherto been regarded as non-pathogenic, is capable of forming products bringing about in susceptible animals such profound blood-changes is of great interest. The results of Todd's experiments are suggestive in connection with the pathology of such diseases as blackwater fever, paroxysmal hemoglobinuria and pernicious anemia.

The Bacillus of Dysentery.—In the summer of 1899 Roger isolated a bacillus from dysenteric stools during an epidemic of that disease at Finisterre. MOREUL and RIEUX (Comptes Soc. Biol., Dec. 6, 1901) during the recent epidemic in Algiers isolated an organism in all cases examined, which they consider identical with that discovered by Roger. They also found it in the stools of several endemic cases examined. The bacillus is often associated with other organisms present in such stools. The rule is, however, that the more severe the case the greater is the number of these bacilli and the less the number of other organisms present. In several very severe cases pure cultures of this bacillus were obtained from the stools. They describe it as very similar in morphology to the bacillus coli communis. It stains easily with all the aniline dyes. It retains Gram's stain. The optimum temperature for its growth is 38° to 40° C., but it can be cultivated at 44° to 45° C. It is extremely motile, often nearly as much so as the typhoid bacillus. It grows well in bouillon, does not liquefy gelatin, forms a thin brown layer on potato, ferments sugars and does not produce indol. It is pathogenic for guinea-pigs and rabbits. It is agglutinated by the blood of animals immunized against it and occasionally by experimental typhoid serum, but only in a low dilution and the reaction is not typical.

Identification of the Colon Bacillus by Means of the Neutral Red Reaction.—It has been stated by several authorities that neutral red agar is a good medium for differentiating the bacillus coli communis from the typhoid bacillus in that the former changes the color to a canary yellow, while the latter produces no such effect. It has been claimed that the presence of colon bacilli in water may be easily demonstrated by merely inoculating such agar with a portion of the water and obtaining the reaction. R. C. ROSENBERGER (Pro. Phila. Path. Soc., Nov., 1901) has recently reviewed this subject experimentally. His work shows that neutral red agar while not affording a specific reaction in the case of the bacillus coli communis should be classified as a valuable differentiating medium. The typhoid bacillus while it does cause a fading of this medium never gives rise to the fluorescence noticed in some cultures of the colon bacillus. This test should not be depended upon as the only differentiating one in the examination of water as several very common bacteria found in such give rise to the same reaction.

Intracellular Constituents of the Typhoid Bacillus.—The essential functions of life are based upon intracellular phenomena and the great aim of biological inquiry at the present time is to obtain a more intimate knowledge of the vital processes of the cell. ALLAN MACFADYEN and SYDNEY ROWLAND (C'tlblt. f. Bäk., Dec. 5, 1901) have taken up this line of research from a fresh standpoint, viz., the study of the intracellular factors in health and disease by obtaining directly the cell substance from the living cell and eliminating so far as possible excreted substances and those formed by the cell in a given environment. For the extraction of the cellular substance of the typhoid bacillus they employed a technic which involved the trituration of the organisms in the presence of cold. In this manner the injurious effects of heat upon the substances present in the cell protoplasm are avoided. The cellular substance thus obtained was submitted to animal experimentation. The inoculation of such into guinea-pigs, rabbits and monkeys is regularly followed by the appearance of agglutinins in their blood. All the animals, but especially the guinea-pigs, showed a marked tolerance for this typhoid cell juice. In all cases the inoculations were followed by marked immunization and the animals were thus easily protected against lethal doses. The same result was obtained when the juice had been preserved for months by the use of thymol. It has also been ascertained that the typhoid bacillus produces hemolysin in various culture media. Thus, the bacilli grown in spleen juice to which serum has been added produce hemolysin in eight days. The endeavors to demonstrate the production of a soluble toxin by the typhoid bacillus have not been successful. If the symptoms of typhoid fever are due to an intoxication as well as to infection the detection of the toxin would mark a great advance in the treatment of the disease by inoculation. All that can be said at present is that if the bacillus produces a soluble toxin ordinary laboratory culture media are not suitable vehicles for its origin. Even when cultivated in fresh juices from various organs of the body, the production of a soluble toxin cannot be demonstrated.

An Electro-Thermal Paraffin Bath.—Since the very broad introduction of electricity into laboratories and establishments in general where scientific work is being done, to the greater or less exclusion of gas, it has become imperatively necessary that some form of electrical regulator be devised. One for which much accuracy is claimed is technically described by its inventor. R. H. STEEN (Brit. Med. Jour., Dec. 14, 1901). The heat is furnished by a pair of ordinary incandescent lamps in which the current is closed and broken by the movement of a cleverly-devised armature which, in its turn, is governed by the expansion and contraction of a column of mercury. This thermostat is very delicate; it holds a temperature so even that no variation is indicated by an ordinary thermometer. This regulator will be welcomed by not a few who have been told that an electrical apparatus which should be reliable was an impossibility.

Biologic Test for Semen.—A test of practical value for the detection of the nature of suspected seminal spots has been proposed by C. G. FARNUM (Jour. Amer. Med. Assoc., Dec. 28, 1901). The test is based on the fact that if bacterial filtrates, peptone, milk, egg-albumin, albuminous urine, blood-serum, etc., are injected at intervals for a period of time, they produce substances in the blood of the animal which form specific precipitates with the substances injected. After experiments made with animal semen, it was also found that the blood serum of rabbits treated with human semen gives a distinct reaction (precipitate) with both recent and old emulsions of human semen in salt

solution, also with human semen which had been dried and preserved thirty-four days on filter-paper and on cloth. But with emulsions of bull, of dog, and of goat testicles no reaction took place. With human blood serum, human semen gives no precipitates. At present it is probably safe to conclude that blood sera treated with different semens and testicular emulsions contain specific precipitins. That the substance which gives rise to the precipitin is contained in the semen itself seems probable from the absence of precipitate in human serum to which is added the serum of rabbit treated with human semen.

GENITO-URINARY AND SKIN.

Skin Eruptions in Renal Disease.—The correlation between skin and kidney lesions has been considered one of undoubted fact for hundreds of years and yet later authorities, according to J. J. PRINGLE (Practitioner, Nov., 1901), have found that it is the exception rather than the rule that the various skin eruptions have any relation to renal disease. The skin eruptions which are connected with nephritic conditions may be classified as those of the early stage, such as pruritus, urticaria and eczema; those in the final stage, such as the universal erythematous bullous or disquamative eruptions, and the purpuric and other hemorrhagic eruptions. Dieulafoy in 1882 made the important observation that pruritus is often an early, or, indeed, the first, symptom of Bright's. It may present all degrees of severity, from a mere localized itching, often about the legs, to an intense and unceasing torture. Urticaria as a symptom of Bright's is very rare, and even eczema is not thought to be more common in patients suffering from albuminuria than in others. Thursfield and Pye-Smith express similar views. Erythema papulatum uræmicum is the most characteristic skin affection the relation of which to renal disease is established, but it is rare. It consists of numerous large papules or nodules with a red areola arising upon an erythematous base, subsequently becoming deeper in color. It begins on the extensor surface of the arms and may spread over the entire body. General bullous eruptions are very rare. Hemorrhages into the skin as well as other tissues of the body are, of course, very common. Boils, carbuncles and ecthymatous lesions are also common, as in diabetes. The cause of these eruptions is unknown, but it is thought that they are similar to those caused in septicemia or ptomain-poisoning, toxins acting through the vasomotor and trophic nerve systems. It is certain that uric acid and urea are not the toxic agents, and it is thought that substances of the aromatic group which reduce Fehling's solution are the offending agents.

Cold in the Treatment of Skin Affections.—In a series of cases comprising lichen planus, eczema lichenoides and herpes tonsurans, E. SAALFELD (Therap. Monatshefte, 1901, S. 356) successfully utilized liquid air to freeze the diseased areas as a means of cure. The spot to which the extreme cold is applied promptly swells; then a white wheal with erythematous border is formed, and after a few hours an acantholytic bleb develops. Within three weeks normal white skin covers the treated area. After early trials with liquid air, Saalfeld adopted as a freezing agent a mixture of chlorethyl with chlormethyl, a much less expensive remedy than liquid air. With this mixture the parts are sprayed for a period varying from thirty to ninety seconds after the appearance of the icy incrustation.

Early Diagnosis of Tuberculosis of the Bladder.—Even the most skilful microscopist may be unable to find tubercle bacilli in the urine in the early stages of tuberculosis of the bladder. In this event the clinician may turn to animal inoculation as an aid to diagnosis, but, as this method can yield no results for several weeks, P. ASCH (Berl. klin. Woch., Nov. 18, 1901) recommends early cystoscopy. It is true that the influence of cystoscopy on the tuberculous process in advanced cases is detrimental to the patient; this, however, is not true, according to Asch, in the early stage of a tubereulous cystitis, when diagnosis without this aid may be impossible. The principal facts in a typical case described by its author are as follows: Frequent urination, often painful; urine constantly clear, free from albumin and sugar; microscopically, the centrifuged urine showed red blood-cells; cystoscopic examination revealed a long ulcer with swollen borders and white central deposit situated about the mouth of the left ureter.

Pleuritic Urticaria.—This phenomenon has been observed occasionally in pleurisy with effusion, and most frequently appears after thoracentesis, according to G. MINCIOTTI (Gazz. degli Osped., No. 135, Nov. 10, 1901). Its appearance at this time is explained by the fact that the upper strata of the exudate is withdrawn, while the deeper portion, containing micro-organisms and their products, remains. This latter, in course of absorption, is taken up by the lymphatics, producing an intoxication of the system, with a consequent toxic urticaria. The eruption seems to bear a certain relation to the rapidity with which the exudate is absorbed. Observers of the phenomenon believe that the earlier the appearance of the eruption and the greater its intensity, the more promptly does absorption take place. Treatment of the dermatosis is considered unnecessary.

Dermatitis Gangrenosa.—A case of this rather rare disease, beginning as a pustular rash, impetigo, is described by J. M. FINNEY (Dublin Jour. of the Med. Sciences, Dec., 1901). In three weeks the pustules had become deep and wide ulcers, and a destructive panophthalmitis had set in. There was a deep contrast between the raw-meat color of the floor of the ulcers, the purplish red shade of their edges, and the fair skin of the body. There was no evidence to associate the disease with vaccination or varicella. Tubercles were found in the thymus gland and lungs. The disease is most common in females, does not seem to be contagious, but is often fatal.

OBSTETRICS AND GYNECOLOGY.

Proper Method of Protecting the Perineum.—It is well known that when Nature is left to herself during the expulsion of a child the percentage of ruptured perinei is very large. The method of supporting the perineum which has been in vogue at the Sloane Hospital for many years is given by L. E. NORFLEET (Med. Rec., Dec. 21, 1901). The aim throughout is to allow the head to advance very slowly and gradually, permitting the perineum time to become relaxed and stretched. The patient's bowels should always be emptied. When the head comes down on the perineum the right hand should be placed flat against the perineum, the fingers on one side, the thumb on the other side of the vulva. The left hand holding the occiput from above, with the right hand from below, is entirely sufficient to control the advance of the head. As soon as the forehead can be felt behind the anus and held from slipping back into the vagina between pains, chloroform should be given until the advance of the child can be entirely governed by the accoucheur. Chloroform may be given earlier in the second stage if the pains are very severe. When the patient is under the influence of the chloroform, by pushing the forehead upward toward the pubes and if

necessary stimulating contractions of the uterus slightly with the left elbow, the head may be slowly "shelled" over the perineum and a tear very seldom results.

An Extraordinary Case of Artificial Respiration.—A well-developed male child was delivered with forceps under chloroform at full term by J. J. REDFERN and G. NEWBY (Brit. Med. Jour., Dec. 14, 1901). The case was not one which presented any unusual difficulty. The cord was twice around the neck and respiration after delivery was entirely absent. All the more usual methods of excitation were used without avail. Intubation failing in the absence of a sufficiently small tube, tracheotomy was performed and a catheter introduced into the trachea. After an hour's work a bicycle pump was connected with the tube; later a pair of small hand bellows was found to work better. At the end of two hours and a half the first inspiratory act was noted. During all this time the heart's action had been entirely under the control of the bellows operator and averaged from 50 to 100 beats. After six hours respiration gradually failed and at the thirteenth hour the child died. The points of unusual interest are (1) the fact that the heart continued to beat for two hours and a half without any voluntary respiratory effort; (2) increased use of the bellows produced marked quickening of the pulse-rate; (3) the child never gave any other sign of life than action of the heart and lungs and clonic spasms of the right hand. The cause of respiratory failure involves the following possibilities: (1) Possible pressure on the vagus or phrenic nerves by the double cast of the cord around the neck; (2) chloroform poisoning by absorption from the mother; (3) injury to the respiratory center through pressure by the forceps on the child's head.

Fetal Placental Circulation.—The relation between the circulation of the maternal and fetal blood within the placenta has long been an interesting subject and has lately been settled beyond reasonable doubt on the point that the blood of the mother does not enter the vessels of the child. B. S. SCHULTZ (Centrablbl. f. Gynäk., Dec. 7, 1901) presents an interesting and simple method of proving this fact. A fresh placenta is taken and floated upon a dish full of warm water with the maternal surface uppermost. The umbilical vein is dissected out of the cord and provided with a cannula. Through this warm milk is run until a high degree of pressure is obtained. It will then be found that the exposed surface of the placenta is entirely free of milk although the head of that fluid has been sufficient to squeeze out blood from the vessels of the maternal surface. It will be found that the placenta will erect itself, so to speak, take on the full form which it had in the uterus, even to becoming concave toward its fetal aspect. While making these changes in position and form blood will continue to flow from the vessels of the maternal surface, but milk does not escape. Furthermore, the separate cotyledons of the organ begin to appear discrete from each other and still the injecting fluid remains entirely within the fetal circulation. If at this point one of the cotyledons is cut with a knife an active stream of milk with oozing will appear. It is best to select the vein for this injection because of its comparatively wider distribution in the organ than the arteries themselves, and also because its lumen remains comparatively larger than the lumen of the arteries and therefore permits the milk to flow more freely. This is a simple and effective means of demonstrating that mother blood and child blood are separate throughout intra-uterine life. It therefore follows that when the child perishes through early separation of the placenta from the uterine wall, death does not occur through lack of blood, as has ordinarily and for many years been held. When such separation occurs, the child does not lose a single drop of blood. Similarly, when a child is born apparently dead from the same cause, it is not from hemorrhage, but rather from deficient aeration of the blood that its condition is at all serious.

Dysmenorrhea.—Any new method of treating this troublesome and common condition is usually tried with enthusiasm. A. THEILHABER (Centralbl. f. Gynäk., Dec. 7, 1901) brings out the following facts regarding the etiology and antomical foundation of the trouble A submucous myoma is a common cause and always produces exceedingly painful contractions of the uterus between and during menstruation. It is especially during menstruation that the womb is excited and that this foreign body provokes greatest trouble. Perimetritis is also a very usual factor in exciting dysmenorrhea. In perhaps more than three-quarters of the cases either one or the other of these two elements is present. The other patients suffer more or less from purely functional derangements. Under this heading must be numbered the various kinds and degrees of displacements of the uterus. The precise seat of the pain is probably in the cervix at the circular muscle bands about the internal os. A condition of tetanic contraction of these bands must be exceedingly painful as is shown also by similar conditions in spasm of the pylorus, and of the cardiac end of the stomach, of the intestines, and of the anus. The exciting factors of such spasms in the womb are nervous conditions like hysteria, neurasthenia, mental disturbances, various forms of sexual abuse and others. In the treatment of this condition, the aim should be to overcome the cause, when one can be definitely assigned. The new method which he proposes to follow out is a step in addition to that which he enunciated not long ago, which consisted in dilating and dividing these muscle bands with the hope that their reunion would be imperfect enough to stop the trouble. He now aims not only to dilate and divide, but also to remove this circular layer *in toto*. In order to avoid cutting away too much tissue, he has devised an ingenious knife which is not unlike a potato-parer. The blade is 1 dec., 5 cm. long, with a little slot in its center, one edge of which is lower than the other and sharpened. The blade is concave away from the edge of the knife. After the canal has been dilated or cut enough to permit the introduction of this blade, it is carried around, pressing the knife firmly against the mucous membrane. The cutting edge projects 6 mm. below the surface of the instrument, so that it is impossible to cut away more than this amount. The author states that the instrument works quickly, directly, thoroughly, safely and gives results that are very promising.

Pessaries in Prolapse.—Artificial means of holding up the uterus in prolapse of the uterus and of the vagina are valuable only when the patient cannot be, for any systemic reason, operated on. A large number of pessaries have been devised for all purpose, and this is one of the most fertile fields both for their invention and for their use. W. ROSENFELD (Centralbl. f. Gynäk., Dec. 7, 1901) presents one for which he claims great advantages. It consists in, first, a funnel-shaped cup, aimed in its size and form to fit over the cervix and be retained there by suction. Drainage is secured by five or six rather large holes. From the center of this cup passes a stem, in length varying according to the size of the vagina and other conditions. This is the second part of the instrument and is provided with a generous drainage hole. Its diameter is, relative to that of the cup, rather small. After the uterus has

been replaced manually the pessary is introduced in such a manner that the walls of the vagina fall about it and the cup is held against the cervix by the fornices. The stem is now left free to move about more or less in the vagina according to the bladder and rectum being full or empty and according to the position of the patient. Like all pessaries the instrument needs watching. The author claims that, in point of efficacy and convenience, when properly applied and thereafter cared for, it is superior to all others that he has used.

Pregnancy and Albuminuria.—Recently the belief that lesions of the kidney are entirely responsible for the presence of albuminuria during pregnancy, and especially the eclamptic seizures, has been much modified by valuable investigations. D. BERRY-HART (Practitioner, Dec., 1901) briefly reviews Schmorl's work to show that eclampsia is due to a strong irritant developed in connection with the placenta, causing degenerative changes in the liver, lungs, and heart, as well as the kidneys, and hence albuminuria is only one symptom of a systemic toxemia. This irritant he believes to be a fibrin ferment derived from placental giant cells. This advance in pathology has led to a modification of the treatment of eclampsia and an avoidance of violent and depressing remedies is particularly urged. We must remember that various organs are undergoing changes, that the nature of the irritant is still hypothetical, and that we still do not know by what organ it is eliminated, if eliminated at all. When albumin is found, a milk diet, rest in bed, attention to the bowels and an occasional hot bath are all that is usually necessary. If headache and eye-symptoms supervene induction of labor is indicated. If eclampsia has occurred, powerful purgatives, pilocarpine and venesection should be abandoned as being too depressant. Chloroform is very valuable and should be given at once to control the seizures. Begin with hypodermic injections of morphine, gr. ⅓ to ½ and gr. ¼, repeated in two or three hours if necessary. The morphine treatment was first started in Germany, but is now fairly well accepted in England. The effect of morphine is more lasting than that of chloroform and constant attention is not so essential. A large saline by bowel should next be given or an intravenous injection in very severe cases. Hot packs are beneficial, but oxygen inhalations seem to do little good. A minimum of judicious treatment seems most successful. Labor should be accelerated, but the rapid methods of Dührssen and Cæsarian section are seldom necessary.

EYE, EAR, NOSE, AND THROAT.

Ocular Symptoms in Bright's Disease.—These symptoms are divided by W. H. H. JESSOP (Practitioner, Dec., 1901) into three groups: (1) Those to be seen externally; (2) those seen by the ophthalmoscope, and (3) uremic amaurosis. The naked eye appearances are those of edema of the lids, especially the lower, which is usually temporary. The conjunctiva may show a bright, shining, watery appearance and subconjunctival hemorrhages are rather frequent. The retinitis of Bright's is usually bilateral. Its severity is no clue to the intensity of the kidney trouble nor the amount of albumin in the urine. Vision, as a rule, is not much affected, except when optic neuritis, extensive hemorrhages or changes around the yellow spot are present. In chronic nephritis, especially in granular kidney, the vision tends gradually and steadily to deteriorate, but total blindness seldom occurs. The appearances of the background vary considerably and no picture may be said to be pathognomonic. The picture may vary according as the white spots and plaques, retinal effusion, hemorrhages, vascular changes, and optic disc changes predominate. Diabetic retinitis is perhaps the lesion the most likely to be taken for Bright's. From statistics it would appear that very few cases live beyond two years after the retinitis has been diagnosed, and most cases with granular kidney die within a year. Uremic amaurosis is characterized by great loss of vision, sometimes amounting to complete blindness. As a rule, it comes on suddenly, clears up in one or two days and may or may not be accompanied by ophthalmoscopic changes.

Treatment of Empyema of the Antrum.—Excellent results in diagnosis and treatment of purulent conditions of the antrum of Highmore through the ostium or accessory openings are reported by N. H. PIERCE (Phil. Med. Jour., Dec. 21, 1901). These accessory openings are probably pathological, but still are quite constant and found in the middle meatus of the nose near the hiatus semilunaris. For washing out the sinus, a Schmidt's cannula is used, connected by a tube with a bulb syringe to a gallon percolator jar. The parts are anesthetized with cocaine or suprarenal extract, the point of the cannula introduced under illumination into the middle meatus, and the ostium or accessory openings felt for and entered. The irrigating fluids must be sterile and bland, such as Thiersch's solution, solutions of sodium bicarbonate, carbolic acid (2½ per cent.), boracic acid, or acetotartrate of aluminum. It is well to use this method before resorting to surgical puncture for diagnosis or treatment.

Mycosis of Pharynx and Base of the Tongue.—On account of the characteristic appearance of this condition, small pointed masses of milk-white color, projecting from the mucous membrane to the extent of an eighth of an inch, there ought not to be any serious difficulty in diagnosis and yet it is often treated for follicular tonsillitis or diphtheria. E. H. GRIFFIN (N. Y. Med. Jour., Dec. 14, 1901) shows how difficult the treatment of these cases sometimes becomes. The patient's throat was treated in succession by the application of chronic, carbolic, nitric and sulphuric acids, but these seemed to irritate the growth and produce an extension. Smoking seemed to retard the growth. Out of fifty cases treated the author has never seen it occur in a man and ascribes this to the prevalence of the smoking habit among men. By picking out each root with forceps and cauterizing with a bent probe with chromic acid a marked effect resulted, but not entirely satisfactory. The following prescription, at first used on account of anemia, really gave the best results:

℞ Tinct. chlor. ferri.....ʒ iij
Glycerini .....ʒ ij
Aquæ q.s. ad.....ʒ iij

Sig. One teaspoonful every three hours as a gargle, without water, and then swallow. The combination of this last method following the evulsion of the membrane and cauterization with chromic acid seemed very satisfactory.

MEDICINE.

Causes and Symptoms of Uremia.—Numerous theories have been advanced in regard to the cause of uremia, but none of them are entirely satisfactory. J. R. BRADFORD (Practitioner, Nov., 1901) reviews the experimental work that has been done and shows that the mere retention of normal constituents of the blood, even when both kidneys are removed, will not produce uremia. On the contrary, the animal or person dies in a condition of profound asthenia after several days of progressive weakness and diminution of temperature. The injection of urine into the blood causes

symptoms resembling uremia and, hence, the retention of toxic substances normally excreted in the urine has been given as a cause, but acute uremia frequently supervenes with little or no suppression and complete calculus suppression causes the symptoms of latent rather than acute uremia. We know that there is frequently an abnormally rapid wasting of the body in cases of nephritis, and it is suggested that owing to the renal disease the tissues undergo an anomalous metabolism with the formation of more or less toxic substances which are liberated in the blood-stream, and, owing to the impaired activity of the kidney, these substances may accumulate and give rise to uremia. Dyspnea is the most constant and one of the most important symptoms. In the acute uremia it may be of the hissing character described by Addison or of the Cheyne-Stokes variety. Convulsions may so closely resemble epileptiform seizures that the diagnosis is difficult, and no other symptoms of renal disease be present. The temperature in acute uremia is usually subnormal, but pyrexia and even hyperpyrexia may result from several seizures. In uremia the gums are usually spongy and bleed easily and the patient complains of an extremely offensive taste and smell in the mouth. Examination of the fundus oculi will almost always reveal papillitis or albuminuric retinitis, and acute uremia occurring during a chronic renal trouble will always show retinal changes. Acute uremia is more especially associated with chronic Bright's due to the form described as the contracted white kidney which often has an insidious onset with no dropsy and an abundance of urine containing considerable albumin.

Sepsis Due to the Colon Bacillus.—Two cases of sepsis in very young infants are reported by O. V. KOVALEVSKY and E. MORO (Klin-therap. Woch., Dec. 15, 1901) in which the colon bacillus was found as the cause. Both infants were brought to the clinic when only a few days old, suffering apparently from marasmus; in the first case the sepsis took its start from a severe cystitis with fibrinuria, followed by pyelonephritis and general invasion of the system, while in the second the primary focus could not be detected and jaundice with hemorrhages was a prominent sign. In both the colon bacillus was isolated from the blood after death and its identity established by serum reaction.

Roentgen Rays in Internal Medicine.—The value of the Roentgen rays as an aid in the diagnosis of affections other than surgical is ably discussed by H. HILDEBRAND (Münch. med. Woch., Dec. 3, 1901). In apical tuberculosis this method gives no better results than auscultation and percussion, since the proximity of the apex of the lungs to the clavicle and first rib gives but poor pictures and since the focus must be of considerable size to throw a perceptible shadow. The results are much more gratifying in gangrene of the lungs, since the exact locality can be determined and since, when multiple lesions are found, useless operation may be avoided. The same applies to echinococcus, tumors and foreign bodies in the lung, while the method offers no advantage in pneumonia or pleurisy, though in the latter a horizontal upper level would speak for hydro- or pyopneumothorax. In simple pneumothorax the differential diagnosis between this and bronchial stenosis and emphysema may be difficult; an X-ray picture will rapidly clear the diagnosis by showing the sharp border between the lung and the empty pleural sac. For diseases of the heart the Roentgen rays can be dispensed with. They are of considerable more value in the diagnosis of aneurism of the aorta, though an abnormal course of the aorta and mediastinal tumors in immediate proximity to the aorta may give similar pictures. It has been recommended to transilluminate the body in an oblique direction from below and to the left anteriorly to the right. By this method the esophagus gives no shadow, but stenoses and dilatations can be diagnosed by the introduction of sounds which throw shadows. Foreign bodies in the gullet are readily determined by the oblique method. Concerning the condition of the abdominal organs, the Roentgen rays have in the main been disappointing. Though the size of the stomach can be determined by filling this with bismuth or shot, the method is far too troublesome and disagreeable to be practical. The course and condition of the large intestines may be demonstrated by giving the patients bismuth for several days, but this, too, has little value. A fertile field for diagnosis, however, lies in the detection of calculi, especially the renal calculi, not uratic in composition. In the majority of instances a shadow will form, though a negative result does not speak conclusively for the absence of stones. Vesical and prostatic stones also readily show, but in the majority of cases the presence of gall-stones cannot be proven unless they contain a high percentage of carbonate of lime. Little value is to be expected from the Roentgen rays in diseases of the central nervous system, and their only slight value in such disorders as Pott's disease, chronic arthritis and osteomalacia must be mentioned for completeness. It is thus clear that while a great aid in diagnosis, too much has been expected of this method, in internal medicine at least.

Early Diagnosis of Tuberculosis.—It is of the greatest importance to detect tuberculosis in its incipiency and the various methods are reviewed by A. MOELLER (Münch. med. Woch., Dec. 10, 1901). The one most frequently practised is the examination of the sputum. If a wet pack be applied to the chest over night and the patient be rubbed thoroughly in the morning the findings will more often be positive. Another modification is to allow the sputum to stand for forty-eight hours at 37° C., when multiplication of the few bacilli present takes place and their detection is facilitated. If results are all negative there still remain the animal experiment and the tuberculous injection as diagnostic aids. The latter is free from danger if the old tuberculin is used and asepsis is practised. The proper dose to begin with is $^1/_{10}$ milligram and a rise of 0.5° C. is considered a reaction. If this does not take place, the dose must be gradually increased. The gastric irritation which may set in is readily controlled by diet and carminatives. The recently-advocated agglutination method has not stood the test of experience.

Diagnosis and Prognosis of Mixed Infections in Pulmonary Tuberculosis.—Much speculation has been indulged in with respect to the relations existing between the various micro-organisms present in the sputum in pulmonary tuberculosis and the bacteriological status of the lung infection. To this end CARL SPENGLER (Ctblt. f. Bak., Dec. 5, 1901) has examined microscopically the sputum of eleven cases of pulmonary tuberculosis and noted the various micro-organisms, in addition to the tubercle bacilli, found therein. The cases were then followed to autopsy and the exact bacteriological conditions of the lungs ascertained. He finds that the infective conditions in the lung are not only qualitatively, but also quantitatively expressed in the sputum. Thus by a microscopical examination of the same the presence and status of a mixed infection can be definitely determined. He divides such mixed infections into multiple, active and passive forms. The organisms found in addition to the tubercle bacillus are numerous but most frequent

are diplo-, tetra-, staphylo- and streptococci. Of especial importance are the streptococci and particularly the streptococcus longus. The appearance of this coccus in the sputum is always of unfavorable omen and is regularly accompanied by high fever and severe general symptoms. The prognostic value of the sputum examinations from this point of view is great.

Icterus and Weil's Disease.—The different forms of icterus, from the simple catarrhal to the toxic and infectious, have been subjects of much discussion. A. Michelazzi (Gazz. degli Osped., No. 144, Dec. 1, 1901) reports three cases, of paludal origin, characterized by the same symptoms in varying intensity. The three patients were fishermen, who, in the pursuit of their vocation, had been immersed to the waist for nearly an entire day in muddy, putrid water, subjected to the miasma arising therefrom. All three were taken ill a day or two after exposure. In explanation of the conclusions drawn from the three cases, the symptoms common to all, with differential points showing the variation in reaction to the infection, are given. Chill, fever, headache, muscular pains, meteorism, clay-colored stools, enlarged spleen, enlarged tender liver, and icterus. Case I., the mildest, no albumin in the urine, fever fell by crisis on the sixth day, rapid recovery after the tenth day. Case II., trace of albumin, spleen not enlarged, recovery after eleventh day. Case III., scanty urine, showing albumin and bile pigment in quantity, high fever, all symptoms more intense than in preceding cases, fall of fever by crisis on eleventh day; relapse upon the sixteenth day, with repetition of all symptoms in severity, equal to first illness. In the author's opinion, the clinical picture in the last case corresponds to the condition known as Weil's disease and the opinion of Patella is quoted, *i.e.*, that the latter condition is similar to, if not identical with, all forms of icterus characterized by a tendency to relapse. The conclusions drawn are that the same toxin, whatever its nature, may give rise to various forms of icterus, from the lightest to that presenting the symptomatology of Weil's disease, and that the latter should not be considered as a separate pathological entity, but rather as a severe form of recurrent icterus depending upon a greater receptivity of the organism subjected to the toxic influence.

A Typhoid Form of Generalized Staphylococcus Infection.—A number of these cases have been reported which resembled typhoid fever in a striking manner. The onset is accompanied by severe headache and nose-bleed, auscultation shows congestion at the bases of the lungs, the abdomen is distended, the spleen large, there is diarrhea, and Deslongchamps has even observed lenticular rose-spots. The onset is generally more rapid than in typhoid fever, chills more common, and albuminuria more intense and constant. E. Hirtz and G. Delamare (La Presse Médicale, Dec. 14, 1901) report such a case with necropsy. Coming on like typhoid fever, the signs of heart failure soon supervened. On the surface of the kidneys, the mucous membrane of the ileum near the cecum, and through the liver and spleen were scattered tiny white nodules surrounded by a hemorrhagic areola. Neither Peyer's patches nor the mesenteric lymph-nodes were affected. Microscopic examination showed the white nodules to be emboli of staphylococci, and these were found in the spinal cord and medulla oblongata, though not visible to the naked eye. There were no lesions of the myocardium except a single embolus, and the authors attribute the heart failure to the lesions of the bulb in which abscesses were beginning to form. The most common seat of infection in these cases is the skin (15 out of 25 cases), then in order the mucous membranes of the bronchi, digestive tract, uterus and urethra. The case reported lasted seventeen days.

Hysterical Perversion of Senses.—Various disturbances of sensation are met with in this most protean disease, but a very peculiar one has recently been reported by G. W. McCaskey (N. Y. Med. Jour., Dec. 14, 1901). Over the lower extremities there was analgesia and over the whole body the sensation to warmth was normal. The interesting part of the case was the remarkable disturbance of the sensibility to cold. Over the trunk and extremities cold was interpreted as heat and the colder the tube the hotter it seemed until ice water appeared to burn. Besides these changes in sensation there were several other stigmata of hysteria making the diagnosis certain.

Transmission of Yellow Fever.—Exceptions are taken by E. Souchon (Med. Rec., Dec. 28, 1901) in regard to a recent article by A. H. Doty, in which the latter concludes that "if ships from infected ports have been five days or more in transit and all on board are found to be well after a careful inspection and the use of the clinical thermometer, the vessel, its passengers and crew, shall be released without further detention or treatment." Dr. Souchon has been able to find thirteen cases in which the evidence seems to show that the disease developed at a later period than five days from infection or, at least, later than five days from the time the vessel left the infected port. As a single case brought into a southern port may prove most disastrous, Dr. Doty's rule is considered too lenient.

Amygdalotomy Rash.—The appearance of a rash following the removal of tonsils is seldom mentioned, but its possible presence should be known in order that a mistake in diagnosis be not made. E. A. Forsyth (N. Y. Med. Jour., Dec. 21, 1901) reports a case in which a small amount of cocaine was used and on the second day after operation a rash appeared on the face, neck and arms and the temperature rose slightly. Scarlet fever was diagnosed on account of the appearance of the rash, but it had entirely vanished in two days. It was thought that too little cocaine was used to account for the trouble. Browne and Wingrave are the only two writers that have ever mentioned such a rash, but they have seen a number of similar cases.

Initial Symptoms of Smallpox.—In a study of one hundred hospital cases of smallpox recently observed in Philadelphia the following facts were noted by W. M. Welch and J. F. Schamberg (Phil. Med. Jour., Dec. 21, 1901). Of the initial symptoms headache was most constant (86 per cent.), next chills or chilliness (78 per cent.), then backache (70 per cent.), vertigo (57 per cent.), nausea and vomiting (55 per cent). In point of time, chills were first observed in 35 cases, headache in 26, backache in 16, vomiting in 9, vertigo in 2. Severity varied, but in the severe cases, the initial symptom was always well marked. The death-rate was 22 per cent. It was also observed that in unmodified cases there was no marked remission of the fever until the second, third, or even fourth day of the eruption. In many cases, moreover, the early symptoms were interpreted as manifestations of typhoid.

Signs of Presenility.—Various symptoms of this rather frequent condition of the present generation are interestingly described by A. McL. Hamilton (Med. Rec., Dec. 28, 1901). Competition and ambition have led to a considerable increase in the mental and physical activity of the average man of to-day and undoubtedly the "strenuous life" has caused many an early "break-down." Mental impairment is one of the first defects noticed and manifests itself in various ways.

Slight emotion causes such persons to become flushed and irascible or to lose their patience. Hypochondriasis develops from that introspection which accompanies a limitation of brain power and easily-produced mental fag. He is indisposed to indulge in argument and arrives at results with the least effort possible. An early impairment of memory is especially annoying. Men between thirty and forty are liable to suffer from headaches of a peculiar kind, undoubtedly connected with changes in the size of cerebral vessels. The pain is suboccipital or frontal and usually bilateral. Many may first complain of what the writer believes to be an early symptom of cerebrospinal ischemia—cramps in the legs. This occurs most frequently at night and in the posterior leg muscles. Giddiness is also important and any unusual cardiac stimulation is liable to bring it on. A peculiar but fairly frequent kind of vertigo is described as the antero-posterior variety, as if "the blood was flowing from the front to the back of the brain." Consciousness is never lost and the state is not a persistent one, except in the matter of its frequent occurrence. Presenile insomnia is usually dependent upon an irritable brain. The avoidance of excesses of all kinds must be strongly urged in these cases, the regular use of considerable amounts of alcohol and tobacco leading to very harmful results by determining the blood supply to brain. Cerebral flushes are especially injurious. Each individual case must be managed according to the indications present, the regulations of one's habits being very important. A beneficial result is apt to follow the judicious use of the hot saline bath, a modification of the Nauheim treatment.

THERAPEUTICS.

Treatment of Paroxysmal Dyspnea in Aneurism of the Aortic Arch.—If purely spasmodic in character, due to reflex from irritation of the recurrent laryngeal nerve, this most distressing condition can be relieved, says F. BUSHNELL (Brit. Med. Jour., Dec. 7, 1901), by laryngotomy and anesthesia. Whether chloroform alone, without laryngotomy, would suffice must depend on the site of the irritation and on the state of the patient. It seems clear that, if the anesthetic did not at once relieve the laryngeal spasm, laryngotomy would have to be at once performed and artificial respiration, with the administration of an anesthetic, resorted to. In many cases the administration of chloroform and amyl nitrite give immediate though unhappily not lasting relief.

Treatment of Abortion.—This term is usually applied to the throwing off of the impregnated ovum at any time from conception till the complete formation of the placenta. H. HUGHES (N. Y. Med. Jour., Dec. 21, 1901) divides it into criminal and simple accidental, the latter of which may be either complete or incomplete. In a case of threatened abortion the patient should be put to bed and at rest, both physically and mentally. Morphine also should be used to quiet the uterus. If abortion becomes evident from the persistence of pain and hemorrhage, any attempt to prevent expulsion may prove harmful. The indications then are to stimulate the pains and control the hemorrhage, and the tampon is by far the most efficient agent for this. Almost any kind of gauze may do, or strips of old muslin, but they must be sterile. Fineness of texture is also important. The rectum should be emptied; a vaginal douche is not usually necessary. The external parts are scrubbed, a drain-pad is adjusted, and a sterile speculum inserted. One piece of gauze is introduced into the cervix which is then closely packed around with gauze and the whole vagina firmly filled with the sterile material. Considerable pressure is needed for if it is not firm the packing will be worse than useless. The succeeding pains are for the patient's benefit and the gauze is generally removed when the pains cease, but it may be left in for twenty-four hours. Retamponing may be necessary, but the fetus is usually found on the gauze or in the vagina on removal of the tampon. In incomplete abortion removal of the secundines is necessary and the patient is prepared as before. Tenacula are used to bring down the cervix, some dilatation may be necessary and a blunt curette is employed to clean the uterus, which is subsequently washed out with creolin, one-half per cent. The vagina is then lightly packed with gauze. To relieve the pain and restlessness the following may be used:

℞ Morphine sulph.....gr. 1/6
Chloral hydrate.....gr. x
Sod. brom.....gr. x
Water .....oz. ij

Criminal abortion must always be considered as septic. Curettage should be done, followed by douching and packing with iodoform gauze which is left in for six to eight hours. In these cases one's own reputation must be carefully guarded.

Rectal Serumtherapy.—Early in 1896 M. Chantemesse reported his experience, which was most favorable, with this mode of treatment in twenty cases. E. W. COLLINS (Brit. Med. Jour., Dec. 7, 1901) adds some cases of his own and confirms the French observations. In a very severe case of erysipelas of the face he gave antistreptococcus serum by rectum, 10 c.c. each twenty-four hours for three doses. In this case, and in all his diphtheria cases, the result was immediate. The advantages of this mode of administration are a rapidity of absorption almost equal to that of subcutaneous injection without subsequent unpleasant or untoward effects, such as pyrexia, joint pains or skin eruptions. The rectal dose should not exceed that of the subcutaneous injection.

Treatment of Diabetes Mellitus.—To facilitate the discussion of the treatment of diabetes, R. LEPINE (Wiener med. Blät., Nov. 28 and Dec. 5, 1901) divides the patients into (1) diabetics without and (2) those with diacetic acid in the urine. The former class admits of a subdivision into those (*a*) in which the glycosuria disappears after careful dieting, and (*b*) those in which it persists, and the latter into (*a*) those in which the diaceturia readily yields, and (*b*) those in which all treatment is unsuccessful in removing it. Where dieting only is necessary, the ingestion for three days of only proteids and fat will generally suffice to obtain a urine free from sugar, and it is only necessary to keep the patient for several weeks on this diet and then gradually to add carbohydrates. Much more serious are those cases in which the glycosuria persists. Here the absolute meat diet has been advocated, but this irritates the kidneys and increases the albuminuria, enhances the liabilities of diacetic-acid formation, and even leads to more marked glycosuria. It is therefore necessary to reduce albuminous food and to add fat, although this in large amounts may meet with resistance on the part of the patient and may also form a source for acetone. Concerning the second class of cases, various drugs may diminish the acid dyscrasia: of these bicarbonate of soda and gluconic acid are the most valuable and have been known to tide over attacks of coma. The increased consumption of carbohydrates may also lead to an improvement in, or disappearance of, the acid.

Fatty Heart.—The modern conception of the term fatty heart is summed up by C. HIRSCH (Münch. med. Woch., Nov. 19, 1901) as follows: (1) A fatty

heart as a disease *sui generis* does not exist and the term should be altered into cardiac disturbances of the obese. (2) If an obese person under forty years of age, with poorly-developed musculature, shows symptoms of cardiac weakness, the disproportion between the size of the body and the force of heart must be considered as first cause, but others such as coronary sclerosis, or severe functional trouble must be excluded. (3) In the obese of all ages with strong musculature it is more probable that coronary sclerosis, renal changes, arteriosclerosis of the splanchnic vessels or chronic myocarditis is present to account for the symptoms.

Treatment of Anthrax.—The injection of 5 c.c. of a 1-per-cent. solution of collargol directly into the veins has been tried by D. FISCHER (Münch. med. Woch., Nov. 19, 1901) with excellent results in a case of anthrax. After several hours restfulness and spontaneous sleep, with free perspiration, set in and the local symptoms soon abated. Disadvantages were not noticed and the chill by which the injections are sometimes followed can be obviated by carefully freeing the solution from undissolved or precipitated particles of silver.

Fersan in Anemia.—Some excellent results with fersan in the treatment of anemias are reported by A. BASS (Centralbl. f. d. gesamt. Therap., Dec., 1901). A very interesting case is mentioned in which a severe anemia followed gastric dilatation owing to pyloric stricture. Although only one-tenth of the amount of fersan administered passed the pylorus and was absorbed, after five weeks the patient had an almost normal amount of hemaglobin and could with safety be operated upon. The usual daily dose should be about fifteen grams.

Treatment of Cyclic Albuminuria.—After a full meal, after the taking of drugs, such as urea and acetate of potassium, which act as diuretics, after hot baths and with the patient for some time in a horizontal position, P. EDEL (Münch. med. Woch., Nov. 12 and 19, 1901) found in all cases in conjunction with pale and abundant urine a diminution or entire disappearance of albumin. Of greater importance is the fact that exercise, when taken vigorously and with interest, acts in the same way. It is therefore important in treating these cases to resort to dietetic measures and to systematic exercise for heart and respiration. The symptoms of malaise and general weakness of the heart, so often found late in the forenoon, have led the author to give more food during this time and to recommend proper exercise with excellent result. A cautious training of the heart within the same limitations as apply to purely cardiac patients also does good in patients with organic renal disease.

Treatment of Bright's Disease.—In the treatment of acute cases of nephritis W. H. WHITE (Practitioner, Dec., 1901) recommends rest in bed as the most important factor. There is nothing better for keeping the skin at a uniform temperature than a bed, and in acute cases the relationship between the skin and kidneys is especially delicate. The room should be kept constantly at 65° F. and the patient not allowed out of bed or at least out of the room. The diet should always be milk, because it is a simple diet and does not contain anything to irritate the kidneys; it is particularly suitable for fevers, and, lastly, because it is a fluid diet and in acute Bright's it is important to wash out the kidney tubules. For this same purpose large quantities of water have been recommended, but excessive use of water has been found to materially increase the nitrogen excretion. Alcohol is bad for acute cases and so are strong diuretics, but acetate or citrate of potash may be given. Hydragogue cathartics are to be prescribed and frequent sweats produced, subsequent chilling being especially avoided. The best hypnotic is chloralamide in twenty- to thirty-grain doses. During convalescence a very careful return to a more general diet should be made and life in a mild climate should be insisted upon for a time if possible. In cases of chronic tubal nephritis the most striking thing is the extent of effusion of fluid into the connective tissues. This may be partly relieved by rest in bed and purgation. In obstinate cases acupuncture is considered safe if done with surgical precautions. Numerous punctures are made with a triangular needle and a sterile dressing applied and frequently changed. These cases are often kept too rigorously to milk. A feeling of depression and a soft feeble pulse usually mean that a little meat, bread and butter would be helpful. In chronic interstitial nephritis the great essential is to relieve the kidneys as much as possible and therefore the skin must be kept warm and never chilled. Flannels are necessary and a warm climate in winter. Some mineral water containing sulphate of magnesium acts best perhaps to keep the bowels in order. Many false ideas in regard to the diet of these cases have been inherited, the chief object being to diminish the risk of uremia and the percentage of albumin in the urine. The author has paid especial attention to these points in a large number of cases in Guy's Hospital and concludes that "there is no doubt that patients feel better and stronger on a full diet or a nitrogenous diet, such as chicken or fish, than on milk or farinaceous diet, and the liability to uremia is not increased by the more general diet." If the patient is loosing flesh, fats and carbohydrates are desirable. If the pulse tension is low and there is cardiac weakness, meat and beef tea are indicated, for the extractives are strong cardiac stimulants. If the pulse tension is high and the heart hypertrophied extractives are dangerous and may induce cerebral hemorrhage. Thus also a weak heart may do well with a little alcohol, but usually this drug is contra-indicated. Albuminuria in itself is of but little harm to the patient. It has been estimated that even a fifth of the boys at a large public school pass albumin in their urine. In cases of nephritis treatment directed to the diminution of the albumin is unscientific. Furthermore, the author has been unable to discover that the administration of milk in any certain way led to the diminution of the albumin in the urine. The chief guide to the diet should be the state of the pulse.

Potato Diet in Diabetes.—Besides the amylaceous substance which potatoes contain, the water and salts are important. If a person eat potatoes weighing three times as much as the bread ordinarily consumed, says A. MOSSÉ (Bull. de l'Acad. de Méd., Dec. 10, 1901), he will have taken six times as much water and three times as much salt as when living on ordinary bread diet, while the quantity of albuminoid and starchy food will remain the same. The salts of potatoes are chiefly salts of potassium, consisting of potassium in combination with organic acids; these are transformed in the organism into potassium carbonate. Potato diet therefore may be regarded as a sort of alkaline cure, the potassium acting favorably upon the glycolytic function. In 19 out of 20 cases of diabetes reported by MOSSÉ, the substitution of potatoes for bread was followed by a rapid diminution of thirst and glycosuria, and in fact by a general amelioration of the symptom-complex of the disease. The quantity of potatoes administered daily was from 600 grams to three kilos.

The Sanatorium Treatment of Phthisis.—"In our treatment of disease we should realize more fully that the action of pure fresh air is directly curative." These

are the emphatic closing words of an admirable article by R. W. PHILIP (Brit. Med. Jour., Dec. 14, 1901) and embody the essence of the treatment given at the Edinburgh Sanatoria. That this method holds out by far the greatest hope to those infected with tuberculosis is reached by the following conclusions: (1) General condition of the patient. Naturally, it is to the gain in weight that one must look for the most striking evidence of improvement. In the sanatoria good solid tissue is built, both muscle and fat in normal proportion. A gain of sixty pounds within the short space of six months is not unusual. (2) Temperature. The effects of this physiologic, dietetic, open-air treatment is noteworthy. It is very rare to find any pyrexial disturbance among the patients of a properly managed sanatorium. This is not because the lungs have returned to a normal state. On the contrary, they frequently present all the classic signs of cavity formation. (3) Circulation. There are few more beautiful phenomena than the change effected by a physiological life. Within a week or two and sometimes after a few days the rapid soft pulse is replaced by a slowed and resistant beat. The degree to which this is established is to be regarded as of very immediate prognostic value. (4) Alimentary disturbances. Measures directed toward improving the appetite are commonly needless, for it usually returns quickly under the new mode of life. (5) Night-sweats. In no one symptom does the return to a physiological life show itself more markedly or happily. This classic symptom disappears so surely that a continuance of it is to be attributed to ignorance or culpability of those in charge. The conception of pulmonary tuberculosis in the past has been and still is by many too much that of a localized lung disease, while the constitutional condition has been insufficiently considered. So far as treatment goes, the reverse must be the case. The systemic disturbance is immense. To combat this successfully means a vast systemic reformation. A return to the physiological life must be the aim of treatment, whether conducted in a sanatorium or at home. The open or sanatorium treatment has come to stay because it cures and it cures because it is physiological.

THERAPEUTIC HINTS.

Sodium Citrate in Diabetes.—This drug in dosage of 5-10 grams (3j¼-3ijss) has been found by P. DALCHÉ and M. CARTERET (Bull. générale de Thérapeutique, Nov. 8, 1901) to be a valuable adjuvant to more powerful remedies in causing a diminished excretion of sugar. It does not upset the stomach, as its decomposition sets free citric acid which is well borne. It may cause diarrhea. In the urine, besides loosening the sugar, it causes decrease in the urea, and increase in the phosphates and chlorides.

Hermophenol.—Hermophenol, the mercury phenol disulfonate of sodium, is a white powder of saline taste, and soluble in five parts of water. It does not precipitate albumin and is not decomposed by soda, hydrochloric acid or ammonium sulphide. It can be heated to 120° C. (248° F.) without change. The mercury salts, as a rule, precipitate albumin, irritate mucous membranes, retard rather than favor, cicatrization, and are painful in hypodermic injection. The gallate, succinate, sulfovinate, etc., organic salts designed to lack these objectionable properties, are no better than the sublimate. Other organic compounds, such as the salicylate, benzoate, peptonate, etc., do not precipitate like the ordinary mercury salts, yet are mostly inferior to the sublimate in solubility, antiseptic properties and content of mercury. A one-per-cent. solution of hermophenol will quickly destroy micro-organisms and only slowly affects the skin. A solution 1 to 500 can be kept in prolonged contact with the skin or mucous membranes without harm and can be injected hypodermically without abscess formation. Bérard is using wipes, tampons, compresses, etc., made of gauze or cotton soaked in a one-per-cent. solution and then sterilized. He has had no inflammatory reaction from application to a peritoneal surface. He employs a 1-to-30 solution for the eyes of all new-born and in ophthalmia neonatorum. He also uses for his hands a soap containing one per cent. of hermophenol, as this salt retains its activity in the presence of soap. Reynès treats his syphilitics by injections every 2 or 3 days of 4 cc. (3i) of a half-per-cent. solution. The effects are those of the best mercurial, without abscess or other unpleasant sequelæ.—A. MARTINET in La Presse Médicale, Dec. 11, 1901.

Emulsion of Salol.—In certain cases it is advantageous to use salol internally in the form of an emulsion. The following preparation, taken alone or in milk, is recommended in the treatment of gonorrhea and cystitis; each teaspoonful containing 50 centigrams of salol:

℞ Salol 4.0
Gum arabic..... 4.0
Gum tragacanth..... 0.20
Tr. tolu..... 10.0
Simple syrup..... 30.0
Distilled water q.s.

—Jour. d. Méd. d. Paris, Dec. 8, 1901.

Bronchitis with Bronchoplegia.—In treating bronchitis the two general indications are to lessen the cough and diminish the bronchial secretion. But a third indication, sometimes of great importance, is to combat bronchoplegia, the paralysis of the smooth muscles of the bronchi. This may be due to the toxins of certain infectious diseases, diphtheria, influenza, etc., or may be produced by mechanical causes in the course of chronic bronchitis. There is gradual progressive dyspnea with ineffectual cough, accumulation of secretions and congestion. In such a condition an opiate or other sedative might do great harm, drugs that will stimulate the nervous system and reawaken the bronchial contractility being required. A cardio-tonic and hemostatic pill of value is:

℞ Ext. hyoscyami.....0.3 (gr. v.)
Quin. sulph.....1.5 (gr. xxiv.)
Ergotin .....3.0 (gr. xlv.)
M. Ft. pil. No. xxx. Six or eight pills a day.

Rénaut's treatment of bronchitis is to give balsamics (terpin, syrup of tolu or Canada balsam, Venice turpentine, etc.) for the first four days; then for three days to give ergotin in suppository with opium or hyoscyamus, and at the same time pills of

℞ Ext. hyoscyami.....0.3 (gr. v.)
Terpin .....3.0 (gr. xlv.)
Ergotin .....1.5 (gr. xxiv.)
M. Div. in pil. No. xxx. Two or three a day.

In the bronchoplegia of grip, strychnine is the most useful remedy:

℞ Strych. sulph.....0.03 (gr. ss.)
Ergotin .....1.5 (gr. xxiv.)
Quinin. sulph.....3.0 (gr. xlv.)
M. Div. in pil. No. xxx. Take every two hours with a hot infusion sweetened with syrup of tolu and containing a teaspoonful of old brandy.—A. MARTINET in La Presse Médicale, Dec. 14, 1901.

The Medical News.

A WEEKLY JOURNAL

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SATURDAY, JANUARY 11, 1902.

ASSOCIATION MEDICAL DEFENCE.

The adoption of the report of the committee of the New York County Medical Association appointed to draft a scheme for organized medical defence in suits for alleged malpractice makes the first step in an important practical movement that will undoubtedly redound greatly to the benefit of the medical profession. Only last week the *Journal of the American Medical Association,* after reviewing legal decisions in several States that show the permissibility of the formal insurance of practitioners of medicine and surgery by special insurance companies, asked the question, "Would it be practicable and advisable for the State societies of the American Medical Association to take up this work and such profits as may accrue be kept in the profession and not be allowed to outside companies."

The New York County Association makes the first practical response to this question and the details of the scheme of defence organization as presented seem to promise that the difficulties in the matter have been thought out and provided for.

This is a step in the right direction. Undoubtedly the knowledge of union among physicians for defensive purposes will deter many blackmailers from attempting to annoy practitioners into settlement in preference to expensive and time-taking litigation. Lawyers, too, will feel much less like encouraging clients to bring suit unless there is really some good reason. Moreover, such suits will lose much of their personal character. Prosecution will not be attempted for motives of spite and the general public will come to recognize the fact that legal entanglements are not due to deficient knowledge or blameworthy neglect, but to the inevitable uncertainty of human ailments.

The movement thus initiated promises to do more for effective solidarity among the members of the medical profession than almost any other feature of association work. It remains now that the details of the plan of medical defence shall be carefully elaborated and that the difficulties inevitably to be encountered in hitherto untried methods shall not be permitted to discourage those directly interested nor seriously hamper the assured eventual success of organized medical defence.

ELEMENTS WHICH ENTER INTO THE QUESTION OF PROGNOSIS.

It is a matter of the greatest importance to be able to give a clear and candid opinion as to the probable outcome of disease and injury. We become so accustomed to the appearances and the phenomena of disease that we sometimes forget (at least some of us do) the intensity of feeling of those who are looking to us for comfort and relief.

How much significance attaches to severe illness, not only in connection with the one who is sick, but with the larger or smaller circle of those who may be associated with or dependent upon the sick one, no one can realize, and, coupled with this, is the distressing thought that we are always hedged in by the limitations of human knowledge and attainments. The doctor's opinion, whether he be the attending physician or the consultant, may be compared to an anchor or a rock to which the patient and his friends cling with desperation. It is at times pathetic to see the faith with which the physician's utterances are received. In the case of individuals of prominence how closely are the bulletins scanned and the opinions and prophecies of this or that attendant analyzed as if he were able to weigh the disease in all its variations!

In those cases in which the situation is sufficiently serious to cause anxiety there are at least

four propositions with which the physician is confronted and to which he is expected to give an answer. If he is unable to answer them himself, he asks for counsel, both for a division of the responsibility and to obtain light from another point of view. Of course, it does not follow that the consultant is any better informed or more competent than the attendant physician, but he has the advantage of considering the case with a freshness of vision which the latter may not have.

The first question which is asked when it is apparent that an individual is seriously sick is, Will he get well? Whether the case be a medical or a surgical one, this question may be an extremely difficult one to answer and in the case of certain severe diseases, especially the malignant ones in which operation may be out of the question or of very doubtful value, it is somewhat of an executioner's task to say, "No, the patient will not get well." What can be more distressing than to banish hope from the human heart? Many doctors have been called brusque and cruel because they have stated cold facts as they saw them. It is not necessary in prognosis to be rough or harsh, and if no ray of hope is apparent to the physician he ought at least to express his adverse opinion in the gentlest possible terms, and assist both patient and friends to meet the inevitable by all the art and tact which he can summon to his assistance.

The next question which must be answered is, How long will the sickness last? In the case of a probably or certainly fatal issue a truthful and correct answer is often very difficult. In the acute diseases a physician of experience may be able to forecast the result with considerable accuracy. In the chronic and malignant diseases it is often impossible to give expression to an opinion in set terms of months, weeks or days. It is certainly expected that an approximate answer will be given and one should at least be able to say within what limits the issue will be probable. If the result is likely to be favorable the requirements are not usually so exacting as in the case of a probably fatal result; but the wise physician should err in placing it at a remote rather than a near limit.

Another question which is of great importance concerns the occurrence of complications. Discredit often comes to the physician because he has not foreseen them, or has not considered it prudent to make such a fact known. It often happens, especially in surgical practice, that an uninterrupted and immediate recovery does not result, and disappointment or vexation may even lead the patient and his friends to question the skill and judgment of the attending physician. It is very desirable to forewarn them if such an issue may be expected. We all know that the best results of certain operations may not appear for six months or a year, and equally that the utmost skill and care may not forestall the necessity for a second operation. Patients should clearly understand this in the forecast which is made of the course and results of the treatment.

The fourth question which is usually asked, and especially in surgical work, concerns the possible return of the disease. It is certainly gratifying when one can give assurance that certain conditions when once removed will not return. However cheerful statistics may be made to appear, the average practitioner knows that the chances are against radical cure for malignant disease. It is also true that the results are sometimes better than our fears may lead us to expect. It is to the younger practitioner that the consideration of the various questions involved in prognosis is of especial importance. He will often make his reputation, good or bad, not alone by what he does but by what he says; and it will be of no little service to him if the opinion prevails that his judgment is acute and reliable, and that he can be depended upon to give a fair statement of the course which a given disease is liable to take.

NEEDLESS LAPAROTOMY.

SOME time ago the *British Medical Journal,* apropos of the frank confession of some diagnostic mistakes by surgeons, suggested that a meeting a year of medical and surgical societies at which only mistakes should be discussed would be an extremely valuable institution. It further suggested that, if deemed advisable, reporters should be excluded from this annual confessional meeting. To deprive the medical public of the benefit to be derived from such confessions would be too bad. *Erranda discimus,* we learn by erring, is as true now as when penned by the old Roman nearly 2,000 years ago. Happy the man who can learn from other peoples' mistakes. He is rare, of course, for personal experience is after all the only real teacher and only the exceptionally wise man ever learns from the mistaken experiences of others. The ideal in medical advance is, however, to profit by the errors of others and so we are glad to be able to present some account of certain entirely justifiable surgical mistakes that under the stimulus of the candidness of Dr. Munro of Boston were the subject of confession at the last meeting of the Har-

vard Society of New York (see Medical News for January 4th, p. 43).

Now that surgery and medicine overlap so extensively in the management of abdominal conditions, surgical findings in cases where diagnosis was at fault are especially suggestive to the medical man. There are many intra-abdominal affections whose differentiation one from another is most difficult. Appendicitis, right oophoritis, and certain biliary affections are liable to almost inextricable confusion in complicated or somewhat unusual cases. There are, however, other pathological conditions supposedly quite distinct in symptoms that may well prove sources of error.

The hope for advance in diagnosis depends mainly on frank confession of errors and the collation of cases that will show the reasons for such errors.

While peritonitis would seem to be, as it actually is in ordinary practice, an easily recognizable condition many an abdomen has been opened in the confident expectation of finding it present, yet the operator has been disappointed. Prof. Koenig of Berlin, an extremely conservative surgeon, exhibited a patient a short time ago before the Berlin Society of Physicians and Surgeons of the Charité Hospital on whom three laparotomies for peritonitis had been done in every instance to disclose an absolutely normal peritoneal cavity. The patient was a man and had some method by which his abdomen become tympanitic and his countenance took on the anxious expression characteristic of peritoneal inflammation, while he complained of all the subjective symptoms of the affection. Successive operators had found the old abdominal scar, but considered this an accessory indication for laparotomy since a second abdominal operation is proportionately more frequently necessary than a first one.

Where stigmata of hysteria exist, or where, as in one of Dr Munro's cases, the morphine habit is present, the possibility of simulation of what are ordinarily urgent surgical symptoms must be borne in mind. It is of extreme importance in our day of justifiable surgical readiness to do abdominal work, to be reminded that acute nephritis may so readily simulate appendicitis or surgical conditions in the biliary tract. For this kidney affection laparotomy can do no good and the effect of the operation will probably work serious injury. The exclusion of nephritis, then, in doubtful cases is absolutely demanded.

Two recent suggestions in kidney surgery, Dr. Reginald Harrison's splitting of the capsule for the acute congestion he picturesquely describes as glaucoma of the kidney, and Dr. Edebohl's establishment of a new circulation through adhesions in chronic nephritis must be borne in mind. At times inevitable laparotomies for symptoms whose basis is the kidney may thus prove not to have been needlessly done.

While there are needless laparotomies frequently performed there is no doubt that true conservatism will in the future lead to the performance of more rather than fewer abdominal operations. Many patients still die every year because of failure to attempt surgical relief in suitable cases. The frank report of errors will lead to a better state of mind and a surer diagnosis. Exploratory laparotomies may remain, in Dr. Manges expressive phrase, the "most dangerous of operations," because of the uncertainty involved, but the domain of uncertainty with regard to the indications for surgical interference will be constantly narrowed by the collation of actual experiences. No one is infallible, least of all in the applications of the eminently fallible principles of applied medicine, but we may rise on stepping-stones of past errors to higher things—from discouraging doubt to the comparative certainty that must remain as yet only the moral certitude of human concerns.

ECHOES AND NEWS.

NEW YORK.

New York Academy of Medicine.—The following candidates to resident fellowship of the Academy have been recommended: Drs. J. C. Ayer, Rudolf Denig, C. R. L. Putnam and P. F. Sondern.

German Medical Society.—At the last regular meeting of this Society, held January 6th, Dr. A. Schrapringer showed a case of Sach's family amaurotic idiocy and Dr. T. Bierhof exhibited a new ureter and irrigation cystoscope. Dr. L. A. Ewald read a paper on "Parametritis Posterior" and Dr. F. Maass a paper on "Operations on Nasal Tumors."

Preventive Medicine.—An opportunity to contribute to the literature of this important department of medical science, with the added incentive of a substantial reward if the work submitted is of noteworthy excellence, is given in an offer, made by the Maltine Manufacturing Company, of Brooklyn, of two prizes, one of $1,000 and one of $500, for the best essays on Preventive Medicine by a practising physician. The company has taken the precaution to exclude the commercial element by making it a condition of the competition that none of their products shall be mentioned, or even indirectly alluded to, and by securing as judges three physicians of unquestioned ethical standing, Drs. Daniel Lewis, of New York, Charles A. L. Reed, of Cincinnati, ex-president of the American Medical Association, and John Edwin Rhodes, of Chicago.

Police Surgeon Examination.—The examination for the position of police surgeon held before the Municipal Civil Service Commission on December 20th has been canceled, and a new examination has been ordered. A reading of the papers of the applicants, of whom there were ninety-seven, revealed some irregularities, with the result that each man who took part in the examination has received notice that a new examination is to be held on January 21, 1902, at 10 a. m.

Would Exclude Consumptives.—Residents of the towns of Liberty, Monticello and Rockland in Sullivan County have combined for the purpose of instituting a vigorous crusade against making these towns resorts for consumptives. Several months ago the Liberty health authorities passed an ordinance prohibiting expectoration in the streets, with a heavy fine attached, since which time tuberculosis patients have carried tin cups for the purpose. Now the town of Rockland Board of Health has passed the following resolution and the town of Liberty one similar to it: "*Resolved,* That no person shall maintain a public or private boarding-house or sanitarium within the limits of the town of Rockland for consumptives, neither shall he receive into his house any stranger or guest, other than his immediate relations or those depending upon him for support, who are suffering from consumption, under a penalty of $50." The village health authorities of Monticello have entered into the movement to the extent of requesting local real estate agents to discriminate against leasing properties to consumptives or their friends.

The New York Academy of Medicine.—A stated meeting will be held Thursday evening, January 16th, at which the following paper will be read: "The Food Factor as a Cause of Health and Disease during Childhood," by Joseph E. Winters, M.D. This will be discussed by Drs. Leroy Milton Yale, Wm. P. Northrup, John Dorning, Floyd M. Crandall, David Bovaird, Jr., Rowland G. Freeman, Allen M. Thomas, Thomas S. Southworth, and J. Milton Mabbott.

Surgical Section, New York Academy of Medicine.—The following is the program for the meeting to be held Monday, January 13th: Operation for Intra-Peritoneal Rupture of Bladder, by Dr. James Pedersen; Oöphorectomy for Inoperable Cancer of the Breast, by Dr. Franz Torek; Removal of Malar Bone for Epithelioma of Cheek, by Dr. C. H. Peck; Operation for Intra-Abdominal Omental Torsion, by Dr. H. Lilienthal; Removal of whole Omentum for Intra-Abdominal Torsion, by Dr. J. Wiener, Jr. Papers: "The Cure of Hydrocele by the Injection of Minute Amounts of Carbolic Acid," by Dr. W. B. Coley; "Clinical Memoranda in the Study of a Case of Anuria," by Dr. A. V. Moschcowitz; New Instrument to Increase the Safety of General Anesthesia, by Dr. Frederic Griffith.

Brooklyn Pathological Society.—At the last regular meeting, held January 9th, Dr. Glentworth R. Butler read a paper on "Pathology of Pleurisy and of Pneumonia." The discussion of its various phases was taken part in by Drs. E. H. Bartley, W. B. Brinsmade, E. H. Wilson, J. M. Van Cott, and J. R. Taylor.

PHILADELPHIA.

College of Physicians.—Officers elected at the January meeting of the College of Physicians are as follows: President, Horatio C. Wood; Vice-President, Arthur V. Meigs; Censors, Richard A. Cleemann, Arthur V. Meigs, S. Weir Mitchell, Horace Y. Evans; Secretary, Thomas R. Neilson; Treasurer, Richard H. Harte; Honorary Librarian, Frederick P. Henry; Councillors, John Chalmers DaCosta and J. P. Crozer Griffith.

Alpha Kappa Kappa Convention.—Physicians and medical students from various parts of the United States assembled in this city January 2d and 3d for the seventh annual convention of the Alpha Kappa Kappa Fraternity. The delegates were guests of the University of Pennsylvania and Jefferson Medical College chapters. The old officers were re-elected as follows: President, George Cook; Vice-President, John I. French; Secretary, John H. Collins; Treasurer, Edward R. Pfarre. At the annual banquet Dr. E. P. Davis acted as toastmaster, speeches being made by Drs. Cook, Wilson and Brace.

Health Report.—Influenza has again become prevalent, four deaths occurring from that disease during the week ending January 4th. For the same period there were 90 new cases of smallpox and 16 deaths. Five new cases of smallpox have occurred at the Philadelphia Hospital, making ten in all. The most active efforts are being made to avert an epidemic in the institution.

Obituary.—The remains of Dr. William Koonz, who died of injuries in the Philippines, were interred January 3d. Dr. Koonz was twenty-six years of age, going to the Philippines soon after his graduation. He died of blood-poisoning which developed from a slight wound on the chin received from a glancing bullet while attending a wounded soldier.

Dr. George W. Caldwell died from apoplexy January 1st.

Philadelphia Academy of Surgery.—At the monthly meeting, held January 6th, there were exhibited two cases of congenital misplacement of the scapula. Dr. W. Barton Hopkins reported a case of suture of tion. The case was that of a sailor who had a comthe acromioclavicular articulation for the cure of luxaplete luxation of four months' standing. The bones were cleaned to allow of perfect opposition and sutured by seven strands of silkwormgut used as one cord. They were introduced by making V-shaped borings in each bone with the points meeting at the line of juncture of the bones, thus forming an X of the entire suture. The result was in every way satisfactory, leading to the conclusion that at times it may be desirable to operate in cases of luxation of the clavicle.

The Annual Address in Surgery was delivered by Dr. Joseph M. Spellissy, his subject being "Abscesses in the Right Iliac Fossa of Other than Appendiceal or Gynecologic Origin." Dr. Spellissy enumerated the various structures in the right iliac fossa which may themselves be the seat of abscess-formation or the final lodging-place of pus having its origin elsewhere. Many cases were reported in which abscesses were due to disease of the vertebræ, sacro-iliac joint, ilium, femur, the muscles, nerves, foreign bodies, typhoid ulceration, etc. In view of the large variety of abscesses met with the question may be asked, "Is the diagnosis of appendicitis difficult?" Articles in the various leading textbooks of surgery were quoted to show the very meager space given to differential diagnosis. Dr. Spellissy stated that, because, as one prominent writer states, "the diagnosis of appendicitis is ordinarily easy," it gives the reason why mistakes are made in the cases referred to as simulating that condition. He concludes that the diagnosis of cases with symptoms referable to the right iliac fossa must be made in each instance with regard to the numerous structures of that region other than the appendix.

Dr. Thomas G. Morton read a statement regarding his first appendectomy following a definite diagnosis. This was performed by him on April 23, 1887, the diag-

nosis having been made before the operation, and was the first case of the kind on record. An appendix had been removed earlier in the year, but the diagnosis of appendicitis had not been first made. Dr. Morton reported the acknowledgment of his claim to priority by other writers who had recently been claiming that honor for themselves.

CHICAGO.

The Physical Effects of the Electrical Charge of Ions and the Electrical Character of Life Phenomena.—Dr. Jaques Loeb, Professor of Physiology in the University of Chicago, and Professor A. P. Matthews, Assistant Professor of Physiology in the same University, contributed a joint paper before the recent meeting of the American Physiological Society on this subject, of which the following is a brief abstract: The unfertilized egg dies soon. A fertilized egg will last for a much longer time. Professor Loeb finds that if the egg of the sea-urchin is treated with certain salts, it has the same effect as fertilization. From his experiments he is of the opinion that death is an active process. If it is not checked, it will lead to disintegration. He has poisoned eggs with potassium cyanide and then counteracted the effects of the poison. The results of the experiments with potassium cyanide have been far more impressive than he has ever dreamed. 'The poison acts as a preservative by hardening the outer coating. The eggs are taken as soon as they leave the ovary. Two processes are immediately set up. One is that toward death and the other is toward life. Unless some means are employed, the unfertilized eggs will soon die, the process toward death proving the stronger. The potassium cyanide in the experiments that have been made was used in small quantity. It cannot yet be said that in combinations of cells it would have the same effects, and a continuation of the potassium cyanide treatment does not yield the best results. The egg will take a certain quantity of the salt. It will in this manner be given a much longer life. Its life cannot be indefinitely lengthened by the use of the potassium cyanide, because other effects come in to hinder the action of the salt.

The energies of foodstuffs are supposed to generate from heat to mechanical force, yet the lower forms of life and organisms do not have a temperature above their surrounding atmosphere. It is admitted that electrical currents are the main, if not the universal, forms of stimulation, and he has come to the belief that at least a part of the energies of foodstuffs are turned into electrical forces. If one introduces electrically charged molecules in a body, there are interferences in tissue formations similar to those caused from a current of electricity being used. It has been demonstrated that the muscles of a jelly-fish contract when placed in electroids, but not when surrounded by a non-conductor.

Living matter is a liquid solution containing colored particles. Assuming that said particles have a charge of electricity, and that the liquid has an opposite charge, this would account for the fact that they are equally distributed throughout. By sending a current of electricity through the solution, it can readily be demonstrated whether negative or positive electricity prevails in the atoms. In an electro-positive solution, negatively charged ions may be inserted and the same results obtained. So electrically charged ions alter life. By experiment it has actually been shown that positively charged ions bring about or create life.

The joint contribution of Professors Loeb and Matthews may be summarized thus:

1. Motor nerves contain or consist of a colloidal solution, of which the colloidal particles carry positive electrical charges.

2. Nerve (protoplasm) is stimulated by the passage of the colloidal particles from a condition of a solution to that of gelation.

3. This change is brought about by the action of ions, namely, electrically charged atoms or groups of atoms, which bear negative charges. The stimulating action of any chemical compound depends on these negative charges. Those ions having one charge are less efficient than those with two or three.

4. The colloidal particles of the nerve are held in solution by positively charged ions, sodium, potassium, calcium, etc., and the effectiveness of these ions in preventing stimulation varies directly with the number of positive charges they bear.

5. By these facts chemical stimulation is shown to be identical with electrical. Whenever in any part of a nerve negative charges are in excess, the nerve is stimulated, namely, the colloids pass from a solution to a jelly. The stimulus always arises at the cathode.

6. The irritability of a nerve is diminished whenever the solution of the colloids is rendered more permanent. It increases as the nerve approaches the gelation state. All positively charged ions thus diminish the irritability; negative ions increase it. This explains electrotonus, namely, the irritability of the nerve is reduced near the anode, and increased at the cathode.

7. Heat diminishes the irritability of the nerve by rendering the solution more stable. Cold increases it by rendering it less stable. At high temperatures gelation (coagulation) takes place and the nerve is stimulated.

8. The nerve is stimulated mechanically because the colloidal particles are forced together. As they coalesce, their surface becomes less, less positive charges can reside on it, and part of the negative charges previously induced in the surrounding water are temporarily set free in their neighborhood.

9. The negative charges thus set free precipitate the next layer of colloids, which, in their turn, set free negative charges. This precipitates the next layer, and in this way the nerve impulse is carried. Technically, these negative charges are called the negative variation, and this stimulates each successive element of the nerve.

10. Anesthetics all dissolve fat. They reduce the irritability of the nerve or protoplasm, because the colloids in the nerve (protoplasm) are largely fat compounds and more soluble in a mixture of ether and water than in water alone. All anesthetics render the colloidal solution more permanent and prevent gelation.

11. Besides the number of electrical charges on the ions, there is some other factor which determines the action of the salts. Thus potassium is more effective in reducing irritability than sodium; fluorine is far more effective as a stimulant than chlorine, although all carry but a single charge. It is believed that this difference in efficiency in these monovalent anions or kations is dependent upon the rate of rotation of the electron, or the positive or negative point charge, about the atoms with which it is associated. The electron rotates about the fluorine atom about twice as fast as about the chlorine atom.

12. The stimulating action of any anion or the poisonous action of any kation is, hence, a function, first, of the number of charges revolving about the atom; second, of the rate of rotations of these charges; and, third, of the circumference of their orbits.

13. Chemical stimulation is thus by the electro-magnetic theory of life shown to be identical with stimulation by light waves. The stimulating action of any anion increases as the spectrum of that anion approaches the ultra-violet.

14. The long light waves and heat waves resemble in their action that of positively charged ions.

Antivivisectionists Criticized.—At a meeting of the American Society of Naturalists, held at the University of Chicago, Professor William T. Sedgwick, of Boston, not only condemned antivivisectionists, but he decried the influence of workers for physiological temperance in his paper who seek by legislation to turn text-books on physiology into temperance tracts for students. Among other things, he said: "The antivivisectionists have brought into subjection British animal physiology and principal experimental work in biological science. It is to our interest to see that American naturalists are not so hampered. No one in his senses desires vivisection in public schools, except possibly in normal schools, devoted to the education of teachers. Dissection of clams, sea-urchins and snails, and even fishes and frogs, is not out of place, and may be even desirable in high schools and normal schools. Efforts to restrict vivisection have been unsuccessful through the efforts of scientists aided by the President of Harvard, the President of the Massachusetts Institute of Technology, and the Bishop of Massachusetts. It was even proposed in this propaganda to take names of experimenters and in other ways interfere with the freedom of research. While we have cause to rejoice that we have resisted the onslaught of antivivisectionists, we confess with sorrow that we have been less fortunate with philanthropists in an important element of education. Scientific temperance instruction, which seeks to give young people a proper idea of the evils of alcohol has in some instances caused one-fourth of the space in text-books on physiology to be given over to a treatise on the harm of alcoholic beverages. Sometimes the authors of this branch of the work have been capable, and often they have been unfit for their task. The influence of this propaganda has been injurious to the proper teaching of physiology. Laws calling for portions of text-books to be given over to explanations of the harm of alcohol on the system are operating in nearly every State in the Union. It is odious that the exact amount of teaching should be prescribed by law. Text-books for students should not be controlled by a self-constituted and unofficial oligarchy, the leaders of a propaganda which is neither educational nor scientific. Naturalists should also guard against Christian Scientists who refuse to consider the benefits of medicine. Care should be taken that half-baked ideas should not be given force.

Crime in 1901 and Its Future.—Professor Cesare Lombroso has the following to say in one of our local newspapers regarding crime: "Organic crimes, the most atrocious and the most atavistic ones, have materially decreased, not only in number but in criminous intensity as well. One who has studied the most important criminal trials of recent years, like those of Daiming in Australia, Holmes in America, and Tiburzi in Italy, must have observed that the most atrocious and bloody crimes bear some intimate relation to fraud and robbery, and it is no longer pure ferocity nor thirst for blood which represents the motive of such crimes, but rather the greed of gold and that uncontrollable desire for pleasure that has given a special color to criminality and has converted the atavistic and simply brutal criminality into another kind, which might be called intellectual and less repugnant. One who has studied the criminality of London, and, better still, that of Australia, may observe in figures the evident thinning out of the bloody and revolting crimes. It is clearly shown that the crimes against the person numbering 84,000 in 1858 and 92,000 in 1872, fall to 78,000 in 1898. Thus the bloody crime diminishes to the extent of 8 per cent. Robbery and pocket-picking, 30 per cent.; counterfeiting, 34 per cent. But against this we have an increase of 27 per cent. in offences against property from 1878 to 1892, and an increase of 18 per cent. in offences against property based upon vengeance. But crimes against morality have increased from 530 in 1858 to 1,140 in 1898. In Australia, which represents a greater moral evolution than any other section of the world, indicating what the world will be fifty years hence, we see the crimes of blood descend from 182 in 1889 to 162 in 1898. Assassination is diminishing by one-half; stabbing has doubled and homicide has increased almost one-third. Theft in general has decreased from 574 to 394, while fraud and forgery almost one-half, or from 234 to 111; incendiarism from 23 to 16. Under any and all conditions a certain group of crimes of blood and theft still remain, because the degeneration which is favored by civilization, although it finds an outlet in suicides and insanity, will always give a quota, however scarce, of crimes, and a diminution of occasional causes, especially economic causes, will not eliminate all the counter-causes, which are not organic. As a matter of fact, and there is a lesson in these figures, out of 28,323 guilty Australians, 361 were arrested for the third time, 380 for the fourth time, 180 for the fifth time, and 174 for the sixth time, and 204 for between the seventh and the thirtieth time; and by considering the drunkards in a special class, we have 105 habitual criminals from five to ten times, and 18 from eleven to twenty-five times. Even in England the habitual criminal has increased from 55 for over 10,000,000 in 1863, to 60.2 in 1898, and in this calculation I do not include the suicides nor epileptic insane, who are, according to some authorities, a variety of criminality, and which is appallingly on the increase in the most civilized and enlightened countries. In conclusion, crime cannot disappear in the world, no matter what cure we apply to it, but all crimes, with the exception of those against women, will decrease in brutality and in number. We can now look forward to an epoch when the civilized world will consider crime as a strange expectation, as a monstrosity, which all the world will look upon with compassion, mixed with revolt and disgust.

Changes in Cook County Hospital.—The most important improvement made at the County Hospital during last year was the installation of a new heating-plant in accordance with the recommendations of the special commission that investigated the institution early in the year. Warden Healy reports that at present there are 797 patients in the hospital. During the year 20,218 other cases were treated, as follows: Surgical, 13,812; medical, 4,408; contagious, 693; obstetrical, 326; dressing, 979. The surgical cases were divided as follows: Operable, 4,095; general surgical, 8,724; eye, ear and nose, 256, and gynecological, 737. During the year 269 infants were born in the hospital. Supplies for the institution cost $178,201, and salaries, $117,210. The daily average of patients in the hospital during the year was 818, and the total cost for daily maintenance per capita was 98 cents. During the year many reforms have been put into effect by Warden Healy. Internes have been stopped from performing operations in the absence of a member of the attending staff; alcoholic patients have been debarred from the hospital; the doors have been locked against claim agents and solicitors; and a new system of registration has been adopted.

Public Health of Chicago.—The annual report for 1901 of the Chicago Health Department has just been issued. It is shown in the Department's report that Chicago's mortality for the first year of the twentieth century was more than 20 per cent. less than that of St. Louis; 25 per cent. less than that of Philadelphia;

nearly 28 per cent. less than that of Greater New York, exclusive of New York City proper; thirty per cent. less than that of Boston, and nearly 35 per cent. less than that of New York City. The most gratifying feature of Chicago's low death-rate is found in the steady reduction of infant and child mortality. This is directly attributable to the excellent work of the sanitarians connected with the Department. The deaths among those under five years of age in this city fell from 12,801 in 1891, to 8,282 in 1900. In proportion to population, this is a decrease from 110 to 49 per ten thousand, and in proportion to mortality it is a decrease from 46 to 33 per one thousand of the total deaths of all ages. This reduction still continues, and the report concludes that the completed records for 1901 will show fewer than 7,500 deaths under five years of age, or 42 in ten thousand of population, and fewer than 31 in every one thousand of the total deaths. The Department finds the causes for this diminishing mortality, not only among the young, but at all ages under sixty years, to be sanitation and preventive medicine. As to child-life, the causes for diminished mortality are given as the antitoxin treatment of diphtheria, a steadily improving quality of milk supply, medical inspection of the public schools, mid-summer work in the tenement districts, the growth of knowledge on the part of mothers as to care and nursing of the young, the labors of associations, clubs and settlements. In general terms, the diminished mortality is also largely due to permanent sanitary improvements. It will be still further reduced when the intercepting sewers are built and the full benefits of the drainage channel are realized. The report finds encouragement in the fact that even with a practically bankrupt treasury the city is pushing forward these permanent hygienic improvements. Special stress is laid upon the prospective value of the new smoke ordinance, which is designed to purify the city's air supply as the other and most costly enterprises are designed to purify the water supply. There are many other details in this voluminous report well worthy the attention of any man interested in the city's hygienic welfare and vital statistics.

Needs of Cook County Hospital.—Dr. Denslow Lewis, President of the attending staff of the Cook County Hospital, in a recent report to the County Board of Commissioners, made the following recommendations: (1) The construction of a separate building for skin and venereal cases. He suggests that a three-story building be erected, the first floor of which might be utilized by the County agent for the storage and distribution of supplies. (2) Some provision should be made by the proper authorities for the care of inebriates. This includes the victims of epilepsy, apoplexy, mild cases of insanity, heart or kidney disease, the sandbag or other form of assault or accident, who may be found unconscious on the public streets, and who are usually considered to be under the influence of alcohol. A separate building should be provided for the care of alcoholics, under the direction of the attending staff. (3) A children's pavilion apart from the hospital building is desirable. It is often advisable to permit the little patients to get out of doors, and for that reason their ward should be on the ground floor. (4) Provision for the X-ray work will have to be made. Probably $1,500 will be needed. The laboratory is now nearly completed and the funds from the sale of clinic tickets, together with the amounts received from voluntary reduction of salary on the part of the president and certain commissioners, will probably be sufficient for its maintenance. A photographic outfit will be needed later in the year. (5) A card index system for the proper compilation and preservation of the history sheets and other records is a necessity if periodical bulletins are to be issued showing the scientific work done at the hospital. The appropriation of $1,000 made for this purpose last year was not used because the laboratory was not completed, and it was impossible to furnish full reports of cases without instancing the pathological findings.

Vaccination Creed.—Health-Commissioner Reynolds has decided to issue a vaccination "creed," which is to be posted in boarding and lodging-houses. This method for combating the increase of smallpox was adopted by the Health officials recently. The creed calls the attention of inmates of lodging-houses to the value of vaccination. It says: (1) True vaccination, repeated until it no longer "takes," always prevents smallpox. Nothing else does. (2) True vaccination, that is, vaccination properly done on a clean arm with pure lymph and kept perfectly clean and unbroken afterward, never did and never will make a serious sore. (3) Such a vaccination leaves a characteristic scar, unlike that from any other cause, which is recognizable during life and is the only conclusive evidence of a successful vaccination. (4) No outward results ever follow such vaccination; on the other hand, thousands of lives are annually sacrificed through its neglect, a neglect begotten of want of knowledge.

Woman's Medical College to Close.—It is said that the Northwestern University Woman's Medical College will soon be abandoned, for the reason that Mr. Raymond and other trustees declare that the college runs behind about $25,000 a year. This college has not been well patronized of late owing to other schools adopting the plan of coeducation, and among these may be mentioned, Rush Medical College and the College of Physicians and Surgeons. Mr. Raymond is reported to have said: "It is impossible to make a doctor of a woman. Women cannot grasp the chemical and pharmaceutical laboratory work, the intricacies of surgery, or the minute work of dissecting. At our woman's medical department we do not get as high a class of scholarship as is set by the other colleges in the Northwestern University. Dr. R. B. Sheppard has been instructed to open negotiations for the sale of the buildings and grounds of the Woman's College of Medicine. The college was founded in 1870 by Dr. William H. Byford, and in 1891 it was purchased by the Northwestern and incorporated as a department of that University.

Northwestern Medical College Sold.—It is reported that the Northwestern Medical College has been sold to the Valparaiso, Ind., Normal School and the Chicago Eclectic Medical College. The purchase price is given as $40,000, each of the purchasers paying one-half. President Brown, of the Normal School, has guaranteed to furnish the new institution with at least 100 pupils a year, and the Eclectic College expects to be able to furnish as many more.

To Study Scarlet Fever.—There was incorporated at Springfield, Ill., January 4th, the Memorial Institute for Infectious Diseases, founded by Mr. and Mrs. Harold McCormick in memory of their son, John Rockefeller McCormick, who died just a year ago of scarlet fever. The institution has been endowed generously by Mr. and Mrs. McCormick, but for the present it will have no building of its own. At the beginning its researches will be devoted to scarlet fever solely and the work will be carried on in some other medical institution.

CANADA.

Montreal General Hospital.—The following statement for the month of December has been issued by

the officials of the Montreal General Hospital: The admissions into the various wards were 175; discharged, 159; deaths, 13; average daily sick in residence, 159; ambulance calls, 64. There has been a great falling off in outdoor work and in minor operations.

Appointments.—Dr. Doughty has been appointed assistant librarian of the Legislative Library of Quebec. Dr. William J. Abbott, B.A., Brockville, Ont., who is at present in England taking a post-graduate course, has been appointed to a professorship at Cornell University. Dr. Abbott, who is a graduate of Toronto University, will return during the present month to commence his duties.

Toronto Vital Statistics.—The vital statistics for Toronto for the year 1901 are as follows: Births, 4,445; marriages, 2,148; deaths, 3,438. The following are the numbers reported each year since 1893: Births, 4,064, 4,201, 4,131, 4,246, 4,046, 4,122, 4,007, 4,530, 4,445; marriages, 1,507, 1,456, 1,408, 1,601, 1,501, 1,696, 1,842, 1,789, 2,148; deaths, 3,426, 2,778, 2,986, 2,974, 3,125, 2,871, 3,294, 3,604, 3,438.

Smallpox Situation in St. John, N. B.—Under date January 4th, a despatch to the public press states that the people of St. John hope to see the end of the smallpox outbreak in that city at a very near date. Since the beginning of the outbreak three months ago, there have been 98 cases with 22 deaths. At the present time there are less than 30 people in quarantine, and of this number one-half of them have recovered.

Smallpox Situation in Montreal.—There are at the present time but 45 patients in the Civic Hospital, Montreal, with smallpox. At one time there were 71, so the outbreak is declining and the health officials believe they have the disease well under control. There are yet 19 houses quarantined.

Insane in Toronto Jail.—The Grand Jury of the County of York, Province of Ontario, has made a presentment in which they found that there are at the present time no less than 60 lunatics lying in the Toronto jail awaiting transference to some asylum, but as every one of these institutions in the Province is overcrowded, the present conditions will have to prevail until the new asylum at Coburg is opened for the reception of patients. In the House of Providence, the Jury found 20 consumptives being cared for, this being the only institution of a charitable character which would receive consumptives before the recent popular demand opened up the hospitals again to these unfortunates.

Toronto Over-run with Fakirs.—Toronto, usually, like any American city, has its proportion of charlatans, but at the present time there appears to be an epidemic of quackery abroad. Christian Scientists, osteopathists, palmists, spiritualists, and a new cult known as the "Radiators" are daily figuring in the annals of the Police Court, and the whole city seems to be literally infested with these people. The "Radiators" who have devised the "Radiant Health Circle" were making money until they ran foul of the Morality Inspector, who has had them convicted of obtaining money under false pretences and they are at present awaiting sentence. Some palmists are said to be making as high as $25 per day.

National Sanitarium Association's Report.—The medical superintendent of the Muskoka Cottage Sanitarium, Dr. J. H. Elliott, has handed out his report for the last official hospital year which ends September 30th. At the end of the previous hospital year 61 patients remained in residence and there were admitted during the year 127 patients. Of the 99 males treated during the year, 15 have been discharged apparently cured and 29 with the disease arrested. Of the 29, 14 gave promise of cure, but they could not remain longer. Of these 99 on admission, 24 were incipient cases; 43 advanced and 32 far advanced. The average gain in weight was 13 ounces.

Toronto Clinical Society.—At the regular meeting of this Society, held on the evening of the 3d inst, with the President, Dr. J. F. W. Ross, in the chair, Dr. George A. Peters reported three cases of more than passing interest. A specimen of a phosphatic calculus weighing six ounces was exhibited which Dr. Peters had removed by the suprapubic operation. Dr. Peters also described and illustrated his method of cutting calculi. The calculus is smeared over with a light coating of paraffin and then placed between the heels of a horseshoe lying flat on a board, 6 x 16 inches, at one end of it. The shoe and stone are then set in plaster of Paris, when sawing can be done from the end of the board toward which the heels point. Dr. Peters also reported two cases, one esophagostomy and the other dilatation of the esophagus. The first was rendered necessary in a young man who while drinking a cup of tea swallowed a small upper central dental plate with one tooth. This stuck in the esophagus near the cricoid and an operation for its removal was performed successfully. This was the second case of its kind recorded in the annals of any Toronto hospital. Dr. Peters' case of dilatation occurred in a farmer of thirty-five years. The dilatation occurred just above the diaphragm and was caused by compression of the two crura upon the walls of the esophagus. There was no malignancy. This patient died nine hours after a second operation. Dr. D. Campbell Meyers reported a case of peripheral neuritis which simulated tabes dorsalis, and recovery was noted under good doses of arsenic.

GENERAL.

Cancer Among Sailors.—The mortality from cancer among sailors is very high—44.5 per 100,000, while that of miners is only 12.2.

Health of the Philippine Islands.—The sanitary condition of Manila is not satisfactory, and probably will not become so until it is supplied with a satisfactory sewer system and a large number of the buildings remodeled. The city of Manila is located on a flat tract of land and, beside the river which flows through it there are several artificial waterways which connect with the river and into which a number of private water-closets empty. The foundations of most of the buildings consist of sandstone which becomes water-soaked from six to eight feet above the ground. A number of systems for disposing of the night soil, among which may be mentioned cesspools, stone vaults, and sewer systems connected with the river or bay, are unsatisfactory and the Board has recommended the introduction of the pail system until a proper sewer system can be instituted. Bubonic plague was first discovered in Manila in 1899 and up to the present time 778 cases have occurred, resulting in 618 deaths or 79.4 per cent. Great attention is at present directed toward the destruction of rats, which are believed to be the principal cause of the spread of the disease. But five deaths have resulted from smallpox in Manila during the last fiscal year, and the city is believed to be free from that disease. Pulmonary tuberculosis is found to be very common, 160 deaths having occurred during the past two months. This is regarded as a serious problem. Scarlet fever and diphtheria are rare, but measles is occasionally reported.

Rhinderpest and Locust Plague in the Philippines.—Rhinderpest has been prevalent among the cattle and caribou for a number of years and a large number of these animals have been destroyed. The Board of Health has taken the matter up and has sent experts into the provinces for the purpose of teaching intelligent natives the method of inoculating animals, which has resulted rather satisfactorily, and it is believed that in time the disease will be entirely eradicated from the Archipelago. The locust pest has likewise infested the Archipelago for a number of years, in certain instances destroying the crops and resulting in great suffering among the inhabitants.

A New Epidemic Disease Affecting Horses.—Since the invasion of the wet season in the Philippines, a large number of horses have been reported to be suffering from a febrile disease resulting in a great morality. This disease has been found generally present throughout the Island of Luzon, and in several localities all the native horses have died from it. A large number of Government horses also have been affected with this disease, but the mortality among them has not been so great as among native horses. As a rule, the disease appears suddenly and is not noted until too late to treat the animals. It is characterized by the following symptoms: Rise of temperature from 103° to 107° F., apparently without chill, increased abdominal breathing and full pulse. The temperature is rapidly followed by swellings of the pads under the belly, in the sheath, testicles and legs, and accompanied by heart failure and death in a number of cases. At times the disease is attended by emaciation, and may be accompanied by a convalescence of several months. On post-mortem examination, the organs and tissues, as a rule are anemic, in some cases abscesses are noted in the stomach and abdominal cavities; the pericardial sac and pleural cavities are always full of a serous fluid, but with no appearance of inflammatory changes. It does not seem probable that the disease is of a contagious nature, for in stables where there are a number of horses several may be affected while others remain immune. Microscopical examination shows an animal parasite, which shows active and definite movement and pseudopodia along the sides. The disease has proven an interesting one and is being investigated by the Board of Health, under the direction of the Superintendent of Government laboratories. A large number of specimens of blood taken from animals affected with the disease are at present being examined.

Antitoxin Institute.—An institute for the study and treatment of tuberculosis and other infectious diseases has been opened in Genoa by Prof. Maragliano. An antituberculous serum devised by him and prepared at the institute is offered to the medical profession. Prof. Maragliano holds that the remedies in common use, creosote, guaiacol, etc., have no antituberculous action, but that the benefits derived therefrom are due to their power over the secondary infections. Antitoxin is considered to act in the same way as do superalimentation, pure air, etc.; that is, by producing in the organism such changes as to give the blood-serum antitoxic power against the bacillus and its poisonous products.

Syphilis in Morocco.—This disease is widespread in Morocco; in the cities the natives follow the mercurial treatment prescribed by European physicians; but in the country, the treatment is entirely empirical. The patient is secluded in utter darkness for forty days; he is not allowed to eat beef, salt meat, nor olives, and only unleavened bread is allowed him. There is a sulphur spring near Fez which is much frequented by syphilities.

Hospital for Insane Burned.—One of the new buildings of the Eastern State Hospital for the Insane, at Williamsburg, Va., was burned January 4th. Inadequate fire-fighting facilities, together with the intense cold, made it difficult to cope with the flames. It is believed that several of the inmates perished, and a search of the ruins is being made.

For the Treatment of Consumption.—The King of England's application to anonymous persons for a gift of a million dollars to be devoted to the scientific treatment of consumption is generally applauded, and it is hoped that the next beneficent donor will remember the needs of cancer subjects.

The London Smallpox Scare Continues.—This past week 225 new cases were admitted to the hospitals, against 170, 134, and 161 in the previous three weeks. Yet London, despite the fact that it is the chosen home for the world's outcasts, keeps a lower death-rate than Birmingham, Liverpool, or Manchester, the rate for greater London being 19 last week. Moreover, while 665 smallpox cases were under treatment, the cases of scarlet fever were 3,137, and of diphtheria 1,381.

Pellagralogic Congress.—The second Pellagralogic Congress will be held at Bologna in May. The following are among the subjects to be discussed: (1) Relation Between Pellagra and the Price of Wheat and Corn; (2) Limitation of the Culture of Indian Corn; (3) Clinical Diagnosis of Pellagra; (4) Hygienic Supervision of the Turkish Grain, and Moderation of Its Consumption; (5) Legislation and Pellagra.

Alcohol and Prostitution.—A. Lutaud, discussing the repression of prostitution in France, makes the statement that alcoholism is one of the most profitable sources of income in the house of ill-fame. He quotes the resolutions passed by the French Antialcoholic Union at Lille, November 16, 1901, as follows: "Whereas the sale of alcoholic drinks constitutes a considerable source of revenue to the house of prostitution. (2) Whereas prostitution is in many instances but the unavowed pretext for the sale of intoxicants. (3) Whereas the unhappy women in such establishments are condemned to alcoholism without hope of release. (4) Whereas many among them, by reason of this condition, have the moral sense so blunted that they have no longer strength to escape from their lamentable condition. (5) Whereas suppression of the sale of spirits would have the effect, in many instances, of spontaneous closure of such resorts; be it resolved, that the Administration of Police and municipalities should make every effort to abolish the sale of alcohol in resorts for prostitution.

Eleventh Congress of Russian Physicians.—The Executive Committee announce that the eleventh congress of Russian Physicians and Naturalists will be opened January 2, 1902, at St. Petersburg.

Fourteenth International Congress of Medicine.—It is announced that the eleventh section of this congress, to be held April 23 to 30, 1902, will be subdivided into a department of otology and a department of rhinolaryngology, each having its own president and secretary. The sixteenth section will represent legal medicine and toxicology.

Smallpox at Hackensack.—Smallpox has become epidemic here. On the advice of the State Board of Health the town has been isolated. Guards are posted in the suburbs and no one is allowed to leave or enter the town. Thirty-five cases are reported. The health officers have taken possession of the new town hall as a hospital.

London Health in 1901.—The year 1901 has been very healthy in London. The average death-rate, in a

population of over four and a half millions, was 17.4 per 1,000. The aggregate deaths were 79,601, which is 9,874 fewer than the average for the last ten years. During the first half year there were 7,438 fewer deaths than usual. The rate was above the average throughout November, due to deaths from diseases of the respiratory organs. This was the result of excessive changes in temperature, spells of cold weather being accompanied by fogs. The worst week's rate was 22.3, in November, and the best 13.7, in June.

Kalamazoo's Appendicitis Club.—The Kalamazoo Appendicitis Club is the name of a new organization formed in that city to give aid to the great number of persons now suffering from appendicitis. Its membership hopes also to protect itself against the expense incurred in doctors' fees and loss of time. Seven hundred persons have joined the association. All the money is held in reserve for members' use.

Smallpox in State Home.—One thousand inmates of the State Institution, for Feeble-Minded, at Lincoln, Ill., have been placed in quarantine, as the result of the discovery of a number of cases of smallpox at the institution by Dr. J. A. Egan, Secretary of the State Board of Health. The disease had been prevalent in certain wards of the institution for two weeks, but was being treated as chicken-pox by the attending physicians.

Obituary.—Dr. Frederick M. Barrows, one of the most widely-known and highly-respected residents of Clinton, N. Y., died at his home on Utica Street last week. About a year ago Dr. Barrows suffered a stroke of paralysis, and a few months ago he became totally blind. Dr. Barrows was born in Connecticut, October 6, 1826. When he was four months old his parents moved to Decatur, Otsego County, N. Y., where he lived until he was twelve years old. In 1835 the family came to Clinton, where he since resided. He attended the Clinton Grammar School and entered Hamilton College, but left it during his sophomore year on account of ill health. Then he went to Geneva Medical College, where he was a fellow student with Dr. Walter Griswold and graduated in 1846. He has practised his profession at Clinton ever since, with the exception of one year, when he lived at Bridgewater. He was engaged in general practice and attended patients in all directions within a radius of ten miles from Clinton. He was a member of the Oneida County Medical Society. Dr. Barrows was a man of scholarly tastes and refined manners. He was imbued with the true appreciation of the duties of a physician and practised the healing art as one who finds his highest gratification that he can relieve suffering humanity rather than from a sordid sense of gain. He was a man of most pleasing address and made friends with all whom he met. His life in Clinton had been long and very useful, and his death will be mourned by the many whom he had helped and befriended. He was a man whom every one loved and honored, and in his death Clinton loses one of its most upright and noble characters. He was a loyal friend, a loving father and a tender husband. During the past two years death has entered his family several times, removing loved ones, but he always bore his trials with the Christian fortitude which has always characterized his whole life. The news of his death will be read with profound sorrow by the entire community. Dr. Barrows was married in 1846 to Lydia Dinsmore, who survives him. He leaves a son, Dr. Frederick E. Barrows, who came to Clinton a year ago to assume his father's practice.

Dr. William Augustus Pierrepont died of heart trouble at his late home, Brooklyn, N. Y., January 5th. Dr. Pierrepont was born in Brooklyn and was forty-six years old. After a preparatory education he studied law at Columbia University, receiving a degree in 1876. He did not practise law, but took a course in medicine at the University of the City of New York, being graduated in 1882. The following year he became resident physician and surgeon of the Brooklyn Hospital, where he remained for two years. After that he practised with Dr. Jasper Griswold in Manhattan.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

RARE BONE DISEASES: OSTEOGENESIS IMPERFECTA, SENILE OSTEOMALACIA — OSTITIS DEFORMANS — OSTEOPLASTIC CARCINOSIS SECONDARY TO PRIMARY CARCINOMA OF THE PROSTATE—AMPUTATION FOR WIDESPREAD ABSCESSES—THE DISEASE OF BANTI.

THE recent meetings of the German societies have been interesting. These topics were the chief discussed. Lange, as guest at Gesellschaft für Natur-und Heilkunde zu Dresden (Muench. med. Woch., 1901, No. 45) gave a minute report of several autopsies on patients afflicted with bone diseases. The first was a case of osteogenesis imperfecta. The subject was a male child born prematurely of a physically well-developed primipara. It possessed a good layer of body fat and high-grade quantitatively-deficient development of the whole skeleton with a qualitatively-normal formation of bone. Microscopically there was no softening within the endochondral ossification; the bony vault of the skull was not macroscopically examined. There were multiple fractures of the ribs and long bones of the extremities which for the most part presented some effort at healing and redundant formations of callus. On account of these fractures there were very prominent shortenings and deformities in the lower extremities. Infractions were also common.

The second case was one of senile osteomalacia. The patient was a working-woman, seventy-six years old, the mother of thirteen children, admitted to the hospital July 24, 1900, on account of rheumatic pains in the arms and legs and universal high-grade marasmus. When a child she had rachitis. Her death occurred on March 8, 1901, in the presence of symptoms of general marasmus. The features of the autopsy were the following: Brown atrophy of heart; chronic bronchitis; edema of the lungs; atrophy of all tne organs of the abdomen; osteomalacia of the whole skeleton, showing microscopically widespread bony spaces and macroscopically universal atrophy with abnormal softness of the bone. The spinal column showed kyphoscoliosis toward the right in the dorsal region, with compensation toward the left and with lordosis in the lumbar region. The thorax was of irregular form on account of numerous infractions of the ribs. The pelvis was of typical heart shape, with the sacrum bent almost at right angles, with the acetabula pointed forward and the ilia faced outward and overhanging to an abnormal degree. The hip- and shoulder-joints showed arthritis deformans with numerous soft nodular enlargements of the bone about the joint. In addition to this there were scattered areas of new bone formation in the bodies of the vertebræ and in the malleoli.

The third specimen was one of ostitis deformans in a widow sixty-eight years old, born and bred in Dresden, admitted November 26, 1896, with the diagnosis of insanity secondary to multiple alcoholic neuritis. She had had three children and many miscarriages. There had been chronic swelling of the feet for many

years and severe cramps in the extremities. The examination presented fat, soft muscles, bowed tibiæ, and a broad angular forehead. Voluntary motion was very limited, with pain, tenderness and uncertain coordination. She died on August 18th with symptoms of increasing heart-failure and very marked edema of the lungs. In the interval no particular symptoms had occurred. Some time before death her forehead was noticed to be progressively more prominent. At the autopsy there were found the following features: Atrophy of the brain; degeneration of all heart muscles; universal sclerosis of arteries; chronic inflammation of the trachea and bronchi; long-standing congestion of the spleen, liver and kidneys; chronic catarrh of the stomach; scars of gummata in the liver; thickening of the duodenum; ostitis deformans of the whole skeleton. The skull in particular was of irregular thickness in the right frontal bone and in the occiput it had increased to almost two c.m. in thickness and consisted throughout of finely-porous, rather soft bone substance. The fossæ of the cranial cavity were rather flat, the face showed no changes. The vertebral column particularly in the thoracic and lumbar regions together with the sternum showed exactly the same changes. The right humerus contained in the upper third a marked bend, and in this region there was an evident narrowing of the medulla owing to the presence of the finely-porous bone substance in the bone. In the rest of the shaft there were areas of new bone formations. The pelvis was heavy and thick, normal in form except for a tendency to heart shape, the ilia and pubes were very much thickened in cross section their condition was the same as that of the vertebra. The femora showed a curve and thickening toward the front, just below the great trochanter. Here, as in the humerus, was a narrowing of the medulla caused by the presence of the new bone substance. The tibiæ were also curved to the front, irregularly thickening and in the same general condition as the other long bones. The fourth patient had suffered from osteoplastic carcinosis after a primary carcinoma of the prostate. He was also a laborer, sixty-two years old, admitted February 2, 1900, for chronic rheumatism. His history stated that he had never been seriously sick except for the rheumatism which began in 1899, at first in the left then in the right leg and finally becoming general. He was of medium weight, poorly nourished, heavy boned and weak muscled. He died June 23 after some pain and general wasting away. The autopsy showed the following: Brown atrophy of the heart; general hardening of the arteries of the right and left hydrothorax; atelectasis by compression of the lower lobes of both lungs; atrophy of the spleen, liver and kidneys; a new growth at the upper pole of the left kidney in the adrenal gland; primary carcinoma of the prostate; osteoplastic carcinoma of the whole skeleton. The prostate gland was slightly enlarged, hardened, irregularly deformed and not easily distinguishable from the surrounding organs. Sections showed a grayish-white homogeneous mass with a few lighter spots here and there; with the microscope a small-cell infiltrating carcinoma was seen. The cranium was asymmetrical, of irregular thickness, and increased weight. In both frontal bones, in one temporal bone, and in the occiput there were distinct, discrete, grayish-yellow flat bony new growths which for the most part penetrated the whole thickness of the skull. In the interior they were at times diffuse and at times circumscribed masses. In the ribs and sternum there were increased thickness and weight, with most of the spongy and compact bone displaced by a large, hard, gray-white osseous carcinoma. The vertebræ were very heavy and unchanged in form, but the interior of each was invaded by the same type of neoplasm. The pelvis was of the usual form, but the bones were everywhere thickened definitely or in nodes, especially in the ilia and descending rami of the pubes. All of these thickenings were made up of this same gray-white cancerous mass, or of a diffuse, irregular new bone substance. The femora were increased in weight. In the upper part of the neck and just below the great trochanter were new growths of bone the thickness of the finger. In the upper part of the medulla on both sides was the same gray-white tumor, cancerous in nature, in multiple deposits, each about the size of a hazel-nut.

Von Bergmann, at the Berliner medicinische Gesellschaft, October 30, 1901, read a paper on the amputation of the extremities for widespread progressive abscesses. Contrary to the contention of Virchow that the blood can hardly be a permanent bearer of the bacteriological products of disease, it is to-day established that the penetration of bacteria and their products into the blood and their continued growth there are not only possible but well-established facts. Furthermore, when such a condition of the blood exists, the prognosis in any case is most unfavorable. The good results which have been obtained in such cases of blood infection secondary to phlegmon have been described by Virchow in a Festschrift in honor of the seventieth birthday of Von Coler. The methods of treatment therein described were wide, free and numerous incisions. Occasionally, however, this procedure does not bring about the desired result, and the more radical step of amputation may be necessary. The dictum that has been so freely accepted which teaches that, when the blood has been found to contain the same bacteria as does the phlegmon, the surgeon should then withhold all treatment has been disproved. Recently Dörfler has shown that oftentimes in such cases prompt amputation will lead to a cure. Such treatment seems not only justifiable, but in point of fact the only available thing to be done. The rule by which amputations must be decided upon or avoided depends simply upon the reaction of the abscess under the treatment of free incisions. If the process still continues without abatement, whether the blood does or does not contain the bacteria, amputation should be done forthwith and as high above the phlegmon as possible. Dörfler gives several illustrative cases which his assistant has presented for him. In a series of these cases five show pure cultures of the same bacteria as were in the phlegmon and yet the results were good. The best example is the following case: A student, twenty years old, in alighting from a horse, fell against a passing beer-wagon, injuring his hand. He was immediately taken to the hospital, where two days later his finger was amputated. In spite of this, however, the phlegmon progressed rapidly. Examination of blood taken from a vein on the opposite side of the body was positive, showing numerous streptococci. Wide, free and numerous incisions were made in the diseased member, but without effect upon the infection. Repeated examinations of the blood gave the same results and on the same night amputation of the arm was undertaken. Improvement immediately set in and cure resulted. The most interesting fact in the case is that twice a day for a number of days after the operation streptococci were present in the blood in steadily-decreasing numbers. Fourteen days after the accident they were absent, but on the same day they were found in pure culture in pus from the wound. The man is now

perfectly well and owes his life to that early amputation.

SENATOR presented a paper on the disease of Banti, who described a disease with the symptoms of profound anemia—very great enlargement of the spleen, late appearing tumor of the liver, and ascites. In Italy it is known as Banti's disease. In German literature as yet no notice has been taken of it. It is an interesting fact that this is no new disease. Banti has simply collected in scientific relation a thorough description of a large number of diverse and varying clinical features. He distinguished three stages, as follows: (1) Initial stage, anemia with progressive enlargement of the spleen with a duration of from three to five months; (2) transitional stage, with decrease in the urine, abundant urates, urobilin, and later coloring matter from the bile; duration a few months; (3) final stage, with ascites and tumor of the liver, increasing anemia, slight increment in the white blood-cells, and death after from five to twelve months. The whole disease lasts about six years, occasionally twelve years. If one studies these stages one will find that the first has long been known under the name of primary idiopathic enlargement of the spleen, or splenomegalia. Other names for it are pseudoleucemia (Conheim), and anemia splenica (Griesinger). The later stages are practically those of cirrhosis of the liver with ascites, although some of its features differ slightly from that disease. Banti regards the spleen as the primary and the liver as the secondary seat, because the latter is usually smaller than the spleen. His proof lies in the pathological condition of the spleen, namely, a highly-developed atheroma of the splenic vein, and in the results of treatment. This view of a primary disease of the spleen must be accepted. The cause of the whole disease is an infection or intoxication through the intestinal canal. The ascites may not be in consequence of the cirrhosis of the liver because it is for the most part immaterial and does not increase with the disease of the liver and may disappear through treatment. In the third stage active bleeding through the nose and the intestinal canal is characteristic. During it Banti has found the blood in the condition of simple anemia. Senator has found a disproportionate decrease in the hemoglobin and in three cases a progressive decrease in the number of leucocytes—in other words, a leucopenia. Perhaps this may be characteristic of Banti's disease as an entity. In the marrow of the bones are evidences of profound anemia. Senator then discussed the differential diagnosis between this disease and pseudoleucemia by the increase of lymphocytes, from malaria by the plasmodia, from cirrhosis of the liver by the history and signs, etc. It is possible that this affection is a link between anemia and leucemia. The prognosis is always unfavorable. Removal of the spleen seems to be the only treatment. Eleven cases have been operated on and reported by Maragliano. Only two died and they of hemorrhage. It is very desirable that further data concerning this curious disease should be collected.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held December 17, 1901.

E. Franklin Smith, M.D., Chairman.

Pernicious Anemia.—Dr. James J. Walsh detailed the history of a case of pernicious anemia, with special reference to the etiology suggested by Dr. William Hunter of London, in which gastro-intestinal sepsis is considered the principal causative influence in the disease. Dr. Hunter found that in a series of pernicious anemia cases practically all of the patients suffered from very bad teeth. Usually the teeth did not give very much pain, but were discolored and were evidently the seat of extensive bacterial growth in their carious cavities. The swallowing of these micro-organisms in large numbers, Dr. Hunter thinks, causes deterioration of digestion and finally leads to gastric sepsis. This observation of Dr. Hunter's has not been confirmed by other clinicians, who have been especially watchful with regard to the condition of the teeth in these cases, since Dr. Hunter's publication. Dr. Osler of Baltimore reported, through his assistant, at the last meeting of the American Medical Association, that in the cases of pernicious anemia under his care many of the patients presented bad mouth conditions, but these conditions were not worse than those that occur in ordinary hospital patients suffering from other diseases. English observers have also expressed the opinion that oral conditions were not of as serious etiological importance as Dr. Hunter considers. In New York dentists consulted with regard to the matter expressed the opinion that the bad teeth so common in pernicious anemia were rather an effect than a cause of the disease. The lowered state of the patient's nutrition reduces the resistive vitality of the dental structures and so permits of a more rapid decay.

Antistreptococcus Serum.—Dr. Hunter reported three cases in which antistreptococcus serum was used with very satisfactory results for the treatment of pernicious anemia. The theory of the employment of this remedy is that streptococci are the most virulent micro-organisms that occur in the mouth and consequently the most important in the production of the gastric septic condition. In three cases the use of antistreptococcus serum seemed to produce a remission of the symptoms of pernicious anemia that lasted as long as the patients were under observation.

Case without Oral Infection.—Dr. Walsh's patient was a young woman who had always been extremely careful in the matter of personal cleanliness, so much so that she was considered somewhat of a crank. Her teeth and mouth had always been a source of special attention and they were as clean and sweet as possible notwithstanding the many months during which she had suffered from serious stomachic disturbances. Gastric disturbance was so complete that she retained very little food and growing weakness, the result of inanition, was a marked feature of the disease. As this severe disturbance of the stomach is attributed by Dr. Hunter to some form of gastric sepsis, notwithstanding the presence of good teeth in this case, it was considered advisable, as other remedies failed to bring any lasting relief, to try antistreptoccic serum. Six injections at intervals of three days were given. At the first injection about one-half the dose of serum supplied by the Board of Health of New York was used. There was no local or general reaction. Three days later the full contents of an ordinary Board of Health phial of the serum were employed. This produced a slight local reaction in the shape of a patch of urticaria with some erythema around the point of injection. The third dose produced considerable urticaria over even distant parts of the body. The remaining doses were all of them followed by this discomforting urticaria. There was slight fever, but this was attributed rather to the restlessness produced by the skin eruption than to febrile reaction from the serum.

Therapeutic Effects.—As far as could be seen, absolutely no benefit accrued from the use of the serum

injections. The patient had improved for some time before their employment under the use of nux vomica and arsenic. Vomiting spells, however, had been recurring occasionally and it was in the hope of allaying these that the serum was used. Toward the end of the serum treatment vomiting became more frequent and about a month after the last injection the patient died. As advised by Dr. Hunter, internal antiseptics, salol and salicylate of bismuth and occasional divided doses of calomel were employed. These seemed to relieve the tendency to diarrhea that occasionally became a marked feature of the affection. Arsenic, however, used as Fowler's solution seemed to do more good than any other remedy.

Failure of Antistreptococcus Serum.—In conclusion Dr. Walsh said that the use of antistreptococcus serum had proved a failure in every disease in which it had been thought possible that it might do good. The reason for this is not far to seek. Under the form streptococcus, it is clear to bacteriologists that a large number of different kinds of micro-organisms are grouped. It is practically impossible to obtain the specific serum opposed to any definite group of streptococci, since we do not know any individualizing characteristics of the different forms.

Probability of Failure.—Dr. Alfred Meyer said that while Dr. Hunter's report had very naturally aroused interest because it offered a hopeful remedy in what had been a hopeless disease, disappointment with regard to the use of antistreptococcus serum in other affections might have led us to anticipate disappointment in this. So far we have no remedy capable of putting an end to the progress of pernicious anemia, though the disease is liable to remissions that have given many remedies a reputation for producing some therapeutic effect.

Causes of Epilepsy.—Dr. Louise G. Robinovitch read a paper involving some clinical considerations of the genesis of epilepsy. The paper was the result of the study of a large series of epileptic cases in the Asile St. Anne in Paris during the last few years. Under the direction of Dr. Magnan of that institution Dr. Robinovitch had special opportunities for the collection of data with regard to the etiological factors in the history of the epileptic patients who are sent to this institution as well as the insane. In the majority of the cases of epilepsy a history of alcoholism in some of the progenitors of the patient could be obtained. Epilepsy in the descendants may be the direct effect of alcoholism in the preceding generation. The mental deterioration may, however, skip a generation and not appear until the grandchildren of the alcoholic individual. Epilepsy is associated with insanity in this matter and alcoholism seems to have a special influence in causing deterioration of the mental condition. The alcoholic influence was not necessarily present in the direct relatives of the epileptic. At times it would seem as though the direct influence of alcohol is so far back in the family history that it can not be traced. In many of these cases, alcoholic tendencies in collateral branches of the family, in uncles or aunts, serve to show the unstable mental condition of the race.

Statistics of Alcoholism.—In 140 cases of epilepsy in which the history was very carefully followed up over 90 cases proved to have traces of alcoholism in the immediate ancestry. This is over 63 per cent. and shows what an enormous influence in the production of this form of mental disease the consumption of alcoholic intoxicants has. Alcohol, as is well known from statistics, increases the birth-rate but greatly increases the death-rate in countries where it is freely used. Children of alcoholic parents are especially liable to die young. Something of this early fatality is due to the fact that such children are prone to be neglected; but still more of the infantile mortality is due to the disturbed nervous system that is transmitted from alcoholic progenitors. The use of alcohol to excess produces epileptiform convulsions. These are not true epileptic seizures. The instability of nervous system which such seizures indicate leads, however, to the occurrence of epilepsy in the descendants. Other direct causes of epilepsy have been mentioned, for instance, the acute infectious fevers during pregnancy or the occurrence of acute infection in the children themselves. Such accidents, however, are very much more frequent than is epilepsy. Some predisposition is necessary before epilepsy occurs. This predisposition is due to the deteriorated nervous system transmitted by alcoholic parents.

Alcoholism and Epilepsy in America.—Dr. W. C. Hollopeter of Philadelphia in discussing Dr. Robinovitch's paper said that he was firmly persuaded of the influence of alcoholism in the production of epilepsy. He has a professional friend whose brothers are epileptic and who is firmly of the opinion that the epileptic seizures are due to the alcoholic history in the family. Alcoholism, however, produces a predisposition not only to epilepsy, but also to other nervous manifestations. Feeble-minded children are especially liable to occur in families with a history of alcoholism. Many of the extremely neurotic children that are seen so frequently nowadays will be found to have alcoholic progenitors.

Dr. Bell of Englewood, New Jersey, said that in cases where several children in the family present neurotic manifestations, he is accustomed to look for a history of alcoholism. He has under his care a family of seven children, most of whom present some serious nervous condition, whose father was a confirmed dipsomaniac. In another case out of a family of six children there is but one perfectly normal child, and the cause of the neurotic conditions present in the others seems to be the family predisposition caused by ancestral alcoholism.

Malarial Poisoning and Epilepsy.—Dr. Bell recently saw a case in which a family history of alcoholism could be absolutely excluded. The patient after a severe attack of malaria developed her first epileptic attack at the age of about four years. The family had been living in New Jersey, but moved away in order to get rid of malaria. After the removal the child had a series of what were called congestive chills and later developed epileptiform convulsions. These continued for a couple of years at irregular intervals and then disappeared for a time. At twelve the patient menstruated and had an attack of epilepsy just before and at the conclusion of her menstrual period, the interval being about four days. This recurred each month for several years. When she was about sixteen, one of her ovaries was removed because of cystic degeneration. For three months after this the patient was well. Then her epilepsy developed again and a distinguished ophthalmologist found that her eyes needed surgical care. A tenotomy was performed and for several months no epileptic attacks occurred. After this period, however, the epilepsy reassumed its sway and the patient continues to have her attacks at each menstrual epoch. The direct cause of these attacks would seem to be some serious disturbance of the nervous system produced by the malarial poison.

Epilepsy and Infantile Eclampsia.—Dr. Berg said that the attribution of the epithet alcoholic to a parent is very easily done, but may not be entirely justified if the details of the case are followed. Dr. Robinovitch claims that in France the use of more than two liters

of wine constitutes alcoholism. Of the ordinary French table wine this would be equivalent to about three liters of beer, that is to say six to eight glasses. There are many workmen in this country who take this amount of beer and yet can by no means be considered to be alcoholics. If this quantity were taken as a standard it would seem easy to find even a greater proportion of parental alcoholism in cases of epilepsy than are exhibited in the statistics presented by the reader of the paper. There is no need to take so far-fetched an etiological factor as alcoholism for epilepsy when we consider how important the occurrence of infantile convulsions is for disturbance of the child's nervous system. Long ago Dr. Seguin taught that all epileptics will be found to have a history of having suffered from eclamptic convulsions in childhood. Epilepsy and eclampsia are nearly of the same character. Epilepsy is really a chronic eclampsia that occurs without immediate cause. The occurrence of a convulsion in childhood, when the nervous system is especially subject to deteriorating influences, gives a special tendency to the occurrence of similar convulsions later on in life if some cause proves sufficient to reawaken the once aroused convulsive center. In a patient that recently came under Dr. Berg's care, the immediate cause of the epileptic seizure was the eating of a plate of veal. The patient was a young college student, who had no memory of ever having had epileptic seizures. His mother, however, recalls the fact that he had a convulsive attack when about two years of age. Notwithstanding the employment of bromides very liberally, he continued to have epileptic convulsions every two or three weeks for several years. It was only when thoroughly brominized that he finally got rid of them.

Standard of Alcoholism.—In closing the discussion Dr. Robinovitch said that the amount, two liters of wine, as the criterion of alcoholism had been established by well-known medical authorities who thoroughly understood both the qualities of their wines and of the French people. It is probable that different standards would be required for different people. For phlegmatic Germans the consumption of the equivalent of this amount of alcohol might not constitute alcoholism; for excitable Frenchmen, however, it means an irritation of the nervous system that must surely prove serious in the long run. It is well known that practically only the children of neurotic parents, or those who are for some reason predisposed to nervous phenomena, are liable to infantile convulsions. In some children a very slight cause is sufficient to bring on a convulsion. In certain families the infectious fevers are always ushered in by a convulsion instead of a chill. This indicates the family predisposition to instability of the nervous system. Careful search of the family history will show that the cause of this predisposition in most cases is alcoholic heredity. Where eclamptic seizures have occurred in childhood it is easy to understand that epilepsy may occur later in life, because the predisposition to these explosions in the nervous system is already present. This does not prove, however, that the convulsion in childhood is the cause but on the contrary serves to show how much the predisposition to nervous manifestations has to do with the earlier and the later seizures. With regard to Dr. Bell's case in which there seemed to be no cause for the epilepsy except malarial poison, Dr. Bell said that the family history with regard to epilepsy was negative. He mentioned, however, that the uncle of the patient had suffered from epileptic seizures after an injury which caused depressed fracture of the skull. Depressed fractures of the skull are only rarely followed by epilepsy and the fact that attacks occurred in this case would seem to point to the existence of a family predisposition to epilepsy. Such histories are often spoken of as negative, when rational examination of them will point out the significance of the tales that are often passed over without due appreciation of their importance.

SYMPOSIUM ON CIRRHOSIS OF THE LIVER.

The following papers were read: Etiology and Pathology of Cirrhosis of the Liver by Dr. James K. Crook; Cirrhosis of the Liver in Children by Dr. W. C. Hollopeter of Philadelphia; Treatment of Cirrhosis of the Liver by Dr. George M. Converse. They will appear in subsequent issues of the MEDICAL NEWS.

Infantile Hepatic Cirrhosis.—Dr. Berg in the discussion of the papers said that very few cases of cirrhosis of the liver came under observation at Mt. Sinai Hospital. Among children in whom Dr. Berg had been especially interested atrophic cirrhosis of the liver had never been noticed. All cases of children's disease admitted to the hospital are carefully examined and the size of the patient's liver is noted, so that it seems improbable that the condition would be passed over. Large livers are common enough in children. These do not seem ever to be true hypertrophic cirrhosis, but rather congestive enlargements of the liver. Dr. Berg thinks that it is a mistake to talk of cirrhosis of the liver in general, meaning thereby both the hypertrophic and the atrophic form of the disease. Hypertrophic and atrophic cirrhosis are very different conditions and should be kept absolutely separate. The term cirrhosis should be limited to sclerotic conditions only. It is this form of cirrhosis, especially when accompanied by dropsy and enlarged veins, that Dr. Berg has never seen in children. The diagnosis of hepatic cirrhosis should never be made while there is fluid in the abdominal cavity. Dr. Berg had this impressed upon him very strongly some time ago in a case in which all the indications seemed to point to the existence of hepatic cirrhosis. After the removal of the abdominal fluid the condition was found to be due to cancer of the stomach pressing upon the portal vein. This had caused not only ascites and hemorrhoids, but had given rise also to the formation of veins upon the abdomen in the form of a typical caput medusæ. The liver proved to be perfectly normal. Any closure of the portal vein may give rise to ascites, and yet this condition is, of course, almost impossible of diagnosis. But after the removal of the fluid from the abdomen the liver will be found to be normal and so the idea of cirrhosis will be given up.

Slow Removal of Fluid.—Dr. Alfred Mayer said that, following the example of a colleague who made the suggestion some twelve or fourteen years ago, he employs a very small cannula for the removal of ascitic fluid instead of the usual large cannula. The removal of the fluid from the abdomen in a short time, something less than an hour, as is usually done, leads to its rapid reaccumulation. The small trocar is allowed to remain in the abdomen and the patient is surrounded by bandage material to absorb the fluid which gradually finds its way out through the small opening in the cannula. Although the evacuation of the ascitic fluid by this slow method is followed much less frequently by its reaccumulation, there are certain objections that have been urged against it. At times the fluid does reappear. Then, the fact that the patient is compelled to lie for several days in wet bandages is considered a serious objection by some. Eczematous conditions of the skin may result from this. Some fear the effect of the cannula upon the intestines. If the instrument has a smooth round end there seems to be no danger, however, of its doing any serious damage.

Premature Evacuation.—Dr. James J. Walsh said that it seems advisable not to evacuate the ascitic fluid before it has begun to exert some pressure upon the abdominal wall. The hope of ultimate relief in these cases is the formation of a large collateral venous circulation in the abdominal walls. This will only form under the influence of considerable pressure within the abdomen. The ascitic fluid, then, should not be evacuated before some pressure symptoms are noted. This is especially true in cases where some dilatation of veins in the abdominal wall is already noted.

Dr. Walsh said that it would be a mistake to think of cirrhosis only or even mainly in connection with alcoholism. Many theories have been advanced involving other toxic agents besides alcohol. It is well known that certain of the mineral poisons, especially lead, can produce cirrhosis of the liver. Copper and mercury undoubtedly also induce hepatic sclerosis very similar to ordinary cirhosis. At the last meeting of the American Medical Association, Professor Vaughan of Ann Arbor called attention to the fact that aluminium seems to be one of the substances which can produce cirrhosis of the liver. As alum is very commonly used in the cheaper grades of baking-powder, this fact should be borne in mind by those who see cases of cirrhosis of the liver in which there is no alcoholic history.

Terminology of Cirrhosis.—In closing the discussion Dr. Crooks said that the terminology of the subject of cirrhosis is all liable to misconception. Cirrhosis itself is a misnomer. Laennec used the word originally to indicate the fawn color of the hard livers which he had observed. Atrophic cirrhosis, of course, should be called chronic interstitial hepatitis. Atrophic cirrhosis is at the beginning hypertrophic cirrhosis. Only the biliary hypertrophic cirrhosis is independent. With this confusion of terms it is impossible to make nice distinctions without misunderstanding.

Dr. Hollopeter said that he had been stimulated to study cirrhosis in children by the English observations. He had seen some cases with Dawson Williams in London last June and undoubtedly there is more of it in this country than is generally supposed.

BOOK REVIEWS.

Electricity in Medicine and Surgery, including the X-Ray. By William Harvey King, M.D. With a Section on Electro-Physiology by W. Y. Cowl, M.D., of Berlin, and a Section on the Bottini Operation by Albert Freudenberg, M.D., of Berlin. Boericke & Runyon Co., New York.

For a long time need has been felt for a concise, terse, complete and modernized work on the subject of electro-therapeutics, yet one which the busy practitioner, not overfamiliar with electro-physics, can read and understand.

Such a book has been written by Dr. King, and, while the electro-specialist unquestionably goes into his subject somewhat more deeply than does the author, it will prove to be of great value to the non-expert, written as it is in an easy, fluent way, and in a manner comprehensible to the novice.

The work, as is customary, treats first of electro-physics (without a knowledge of which electro-therapeutics must ever prove unsatisfactory), followed by a chapter each on the X-ray, motor-points, electro-diagnosis and organic electrology.

Part III., on electro-therapeutics, is subdivided into nine sections, each of which gives a good description of the use of electricity in a different branch of practice, with the choice and strength of current, electrodes, etc., and their application. These are copiously illustrated by drawings and diagrams that, unlike many of their kind, really do illustrate the point to be considered.

Where there are two or more opinions held by authorities on a given subject, both are plainly stated and the reasons for them, thus leaving the reader cognizant with the main facts of each, and capable of an intelligent choice of methods. Coupled with these are the opinions and experiences of the writer and his results.

So many claims of an extravagant nature have heretofore been made for electricity that its trial and failure in certain conditions have had a tendency to bring its employment into the category of unsatisfactory methods. But the fact still remains that it has an important place in modern practice, and its proper application to suitable conditions and cases cannot be denied. That it will ever supplant medicine or surgery in many things is not to be expected, and any such idea would be absurd; that it will greatly aid them, and in some conditions will prove more satisfactory is true; and in this book, the author has endeavored to frankly state his opinions and reasons for them.

The book is handsomely and substantially bound, clearly and well printed from good type on excellent paper, having wide margins, and is of a convenient size and form for holding in the lap. A careful study of its contents cannot fail to give the reader, be he specialist or general practitioner, many points of value to him, and to post him in the important advances of that branch of science, without trying to impress him as to its infallibility.

A Treatise on Pharmacy. By Charles Caspari, Jr., Ph.G., Professor of the Theory and Practice of Pharmacy in the Maryland College of Pharmacy. Second Edition. Lea Brothers & Co., Philadelphia and New York.

Former works in pharmacy have consisted of descriptions of pharmaceutical processes and a résumé of the official preparations in groups according to the classes to which they belong. Professor Caspari treats these sections in a concise and practical manner, but in addition endeavors to give helpful suggestions about every step in the various processes of manufacture. Should an unlooked for color or precipitate appear in a galenical, here will be found the explanation, and, if there be such, the remedy. The author does not recognize the pharmaceutical percentage solution in which solids are weighed and liquids measured, although the Pharmacopœia adopts this idea as being the only practical basis for bedside measurements. In this useful book we should like to see a chapter on "incompatibles" and full treatment of the most used unofficial preparations. The illustrations are numerous and add much to the value of the work.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Anatomy in Its Relation to Art. By Dr. George McClellan. Quarto. 140 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

A Text-Book on Diseases of the Ear, Nose and Throat. By Drs. Chas. H. Burnett, E. Fletcher Ingals and James E. Newcomb. 8vo, 716 pages. Illustrated. J. B. Lippincott Company, Philadelphia and London.

A Text-Book of Surgery. By Dr. Hermann Tillmanns. Translated from Seventh German Edition by Drs. B. T. Tilton and J. Rogers. Edited by Dr. L. A. Stimson. Vol. I. 8vo, 841 pages. Illustrated. D. Appleton & Company, New York.

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ORIGINAL ARTICLES.

CONGENITAL ATRESIA AND STENOSIS OF THE RECTUM AND ANUS.

BY W. REYNOLDS WILSON, M.D.,
OF PHILADELPHIA.

FAULTY development of the rectum and anus occurs as an infrequent malformation in the newborn, the proportion being one instance among 10,000 infants. The gravity of the condition depends upon the character of the malformation and the opportunity for treatment.

The classification of the anatomical conditions may be simplified, after differentiating atresia and stenosis, by accepting Ziegler's classification of the former, as follows: (1) Atresia ani simplex; (2) vesicalis; (3) urethralis; (4) vaginalis. This classification includes certain sub-varieties; for instance, in simple atresia the rectum may end at a variable distance from the anus; secondly, the formation of the anus may vary from that of the normal to total absence of the anal depression; again, the more or less complete obliteration of the rectal tube at its distal extremity may simulate a complete absence of the rectum.

As to the deviation of the rectum admitting of such conditions as are included in atresia vesicalis, urethralis, vaginalis, we may differentiate the conditions according to the sex of the infant. In the male, the fistulous opening connecting with the rectum may appear upon the scrotum, upon the inferior surface of the penis, and in some instances may connect with the urethra. In the female, the opening may appear in the vulvar fourchette in advance of the hymen or it may find entrance into the vagina proper. In either sex the rectum may enter the bladder or the ureter.

In the development of the rectum in the embryo the entoderm, which serves as the lining membrane of the gut, may undergo imperfect differentiation, resulting in an incomplete formation of the canal. In consequence of such interruption in development we have a condition of stenosis. Trélat emphasizes the existence of transverse folds shutting off the rectum and causing dilatation above the point of stenosis. He regards such a condition as probably an exaggeration of the rectal valves. Simple stenosis of the anus may exist without associated stenosis of the rectum.

Pathogenesis.—Malformations of the rectum and anus are to be interpreted, according to Forgue, either as instances of reversion in normal development, giving rise to permanent conditions of deformity, or as instances of aberrant development. Certain embryological data may be considered in this connection.

In the earliest stage of embryonic life the germinal area becomes separated into an anterior or posterior zone. The former comprises the three leaflets of the blastoderm which enter into the formation of the neural canal and notochord; the latter, which includes the primitive streak, becomes thinned as it approaches the caudal area of the embryo, constituting ultimately a twofold membrane composed solely of the ectoderm and entoderm, the so-called anal membrane. This membrane is situated in the dorsal aspect of the embryo in the median line, but as the embryo increases in its longitudinal axis and becomes bent upon its ventral surface the anal membrane, which is now designated the anal plate, becomes directed toward the center of the general embryonic cavity. In the meantime the caudal tubercle formed by the caudal projection of the blastodermic elements of the primitive streak surmounting the anal plate furnishes the protone of the future pelvis.

By the fifth week of embryonic life a depression of the anal plate occurs by invagination of the ectoderm, resulting in a small fossa. This is called the proctodeum. In vertebrates the proctodeum does not correspond to the end of the intestine, inasmuch as the gut extends beyond the position of the future anus. Ultimately, however, this post-anal region of the intestine disappears.

Previous to the folding forward of the posterior extremity of the germinal area resulting in the anal membrane, there occurs at this extremity of the embryo a slight outward bulging of the entoderm. As the posterior extremity of the embryo turns forward this beginning diverticulum, the allantois, assumes a position between the anal region and the umbilical vesicle. The allantois communicates with the posterior extremity of the mesenteron, or primitive gut, which hitherto has terminated in a blind extremity, and the common receptacle thus formed constitutes the cloaca. This general cavity becomes divided into the genito-urinary sinus, which serves as the common termination of the genito-urinary system, of the intestinal canal, and of the cloaca proper. The cloaca therefore is in direct communication with the genito-urinary sinus on the one hand, while on the other it is separated from the amniotic cavity by the anal plate. The intra-embryonic portion of the allantois, by reason of the division which takes place progressively between the genito-urinary sinus and the cloaca, gradually loses its communication with the latter. This division is effected by the coalescence of lateral folds of the mesodermic layer which unite from above downward in the median line. The genito-urinary and rectal canals are thus made separate. This division is complete, according to Minot, at the fourteenth week. The anal depression shares in this division,

and at about the tenth week the proctodeum is separated from the future orifice of the urogenital sinus by a circumvallate fold of ectoderm which surrounds the area that is later to become the anus. The newly-formed septum finally develops into the pyramidal mass of tissue which constitutes the perineum. The anus itself is formed by the appearance of small isolated areas of degeneration in the ectoderm, which later become confluent. By the extension inward of this process of tissue absorption the anal pit becomes deepened and the depression gradually approaches the end of the bowel. In the fourth month the anal membrane breaks down and disappears.

The walls of the anus gradually become more and more defined, and the epithelial layer which is continuous with the mucous membrane of the rectum makes its appearance. The deeper layer of the mesoderm becomes differentiated into the muscular and fibrous layers which constitute the underlying structures of the rectal tube.

Interruption in this process of development may affect either the rectum or the anus, resulting in, first, a failure in approximation of the rectal tube to the anal opening; second, a permanent vestige of the anal membrane which remains as an obstruction to the passage of the contents of the bowel; third, a deviation and abnormal anastomosis of the rectum with neighboring organs. Abnormalities in development may affect the anus and rectum coincidently or either structure alone may be the seat of malformation.

Description.—The conditions in stenosis call for no further classification than that dependent on the degree of narrowing. As to atresia of the rectum we may note that the arrest in development may involve a more or less extensive segment. Two types are observed. First, one in which the absence of the rectum may be partial. In this form of atresia the cul-de-sac which marks the termination of the gut may descend into the excavation of the pelvis and adhere by a fibrous tract (1) to the connective tissue lining the posterior part of the bony pelvis; (2) to the basfond of the bladder; (3) to the uterus or the vagina in the female. Second, total absence of the rectum may exist with extensive obliteration of the gut and attachment of the cul-de-sac to the bony pelvis at the level of the sacro-vertebral angle. In certain rare cases the absence of the rectum coincides with arrest in development of the colon. In either form of atresia the obliteration may exist simply as a muscular or fibrous cord, the most careful examination of which fails to reveal the presence of a canal, and in some instances even the strand of tissue which represents the vestige of the rectum may escape detection altogether. As to atresia of the anus we may note that the opening may be permeable only for a certain distance. The configuration of the anus in such cases is normal, but the opening will admit the finger or a sound only to a depth varying from a few millimeters to three or four centimeters. In total absence of the anus the skin may extend from one buttock to the other without a trace of any opening, even sometimes without a notable depression. In such cases abnormality in development of the pelvic region is shown sometimes by the nearness to one another of the tuberosities of the ischia.

Symptomatology and Diagnosis.—The evidences of stenosis and atresia depend upon the degree of malformation. Where the obstruction is absolute and the conformation of the anus abnormal the condition declares itself promptly. There is retention of meconium together with vomiting and abdominal distention. Among the less distinctive symptoms are anorexia, and restlessness alternating with periods of apathy. The child is apt to utter a continuous distressed cry in its restless moments. Hyperesthesia and fever are present. As the condition progresses the infant becomes more or less emaciated and the contrast between the hugely distended abdomen and emaciated portions of the body is sometimes marked. The surface gradually becomes cold and the skin assumes an earthy color, alternating sometimes with cyanosis and mottling. If the condition is not relieved death occurs in from four to six days.

In those cases in which the anus is pervious while the rectum remains the seat of atresia the condition may not be detected, and important symptoms diagnostic of obstruction may escape notice until the opportunity for treatment has been lost. Valuable time is often consumed by repeated attempts to relieve supposed constipation by enemata.

Should the rectum communicate with the genito-urinary tract the fecal material may find exit through this abnormal course. In such cases the vice of conformation may not be incompatible with existence during the early months of life. Communication between the rectum and bladder, however, offers an instance of false evacuation fraught with grave consequences, inasmuch as the fecal masses, which gradually become more and more consistent, act as a source of obstruction. Cystitis, infiltration of urine, and peritonitis are apt to supervene, followed by death.

As to the diagnosis of atresia the anatomical signs of its presence are usually unmistakable. Where a membranous obstruction exists the blind pouch corresponding to the distended rectum contains meconium, the presence of which may be detected by increased bulging during efforts of crying or straining on the part of the infant. Where the obstructing membrane is sufficiently thin the dark color of the meconium may be recognized. The collection of meconium is liable to diminution in bulk through the absorption of its fluid contents in cases in which evacuation is not established.

In atresia of the rectum without deformity of the anal opening the evidences of retention are recognized, first, by exploration of the anal depression with the finger or sound, notably during the efforts of crying, when the distended cul-de-sac may often be detected; second, by the absence of meconium upon the napkins of the infant;

third, by the general symptoms first described. In instances of atresia complicated by anastomosis of the rectum and the genito-urinary tract the condition is recognized by the absence of evacuation through the anus and by the presence of meconium in the urine. Local irritation due to the presence of meconium and the graver symptoms of obstruction of these passages are important factors in diagnosis.

There are but few conditions that might give rise to symptoms analogous to those dependent on stenosis and atresia. The meteorism of atresia is more extreme than distention due to any other cause. The rapidly progressive development of meteorism without inflammatory signs is also of importance. The only conditions that could possibly simulate the distention due to obstruction in the ano-rectal region are infantile peritonitis and distention of the bladder from retention. Further investigations of such conditions would render their diagnosis unmistakable. Intestinal obstruction proper is not accompanied by such sudden and marked meteorism.

The obstruction due to intussusception is at first accompanied by contraction of the abdominal muscles corresponding to the crises of intestinal peristalsis. In the intervals between such contractions the abdominal walls remain yielding, to such an extent as to admit of examination of the abdomen by palpation. The further evidences of obstruction in intestinal invagination, especially the passage of blood by the rectum, are entirely foreign to the signs of obstruction due to atresia.

Treatment.—The object of treatment is to establish the normal anatomical condition as far as possible. This is to be brought about by connecting the blind extremity of the gut with the anal depression. When such conditions exist as to make this impracticable an opening directly into the intestinal tract without regard to the anatomical relation of the rectum and anus becomes necessary. In most cases the indications for operation are urgent. The necessity for immediate intervention is not apt to exist in simple stenosis, nor in instances of deviation of the rectal canal without obstruction. In cases of imperforation, however, a means of exit for the intestinal discharges must be promptly established, otherwise the infant will perish from the results of obstruction.

As to the method of procedure we may note in reference to stenosis that gradual dilatation is indicated. The permanent retention within the rectum of a dilating staff in the form of a flexible bougie is neither necessary nor practical. The dilatation must be practised until the stenosis has been permanently overcome. It is to be noted further that in cases, alike of stenosis and of atresia, in which apparently marked deviation from the normal exists the sphincter muscles of the anus are frequently well developed. In cases of stenosis, therefore, after the original contraction may have been overcome, the spasm of the sphincters may give an exaggerated impression of resistance. The occasional administration of a mixture of castor-oil and glycerin to induce a partial laxness in the discharges is to be recommended; or, instead of this, rectal suppositories of glycerin, manufactured in elongated flexible form, may be introduced into the rectum daily. Rectal injections of saline solution by means of a woven silk catheter introduced to beyond the point of stenosis may be resorted to for the same purpose.

In deviation of the rectum with anastomosis with the bladder or urethra it may be necessary to relieve the obstruction. According to Ball the method of procedure in such case is to perform perineal section as a primary operation, entering the base of the bladder and opening thereby a means of rectal evacuation. Later the colon may be approached by inguinal colotomy, inasmuch as the rectum is held suspended in the pelvis by its attachment to the bladder, and is therefore out of reach by the perineal operation. In performing the secondary operation the cul-de-sac may be drawn up into the inguinal incision and, after its attachment to the edges of the abdominal opening, may be incised. An artificial opening is thus established similar to that in laparocolotomy, while at the same time the perineal incision may be encouraged to heal.

In most cases it will be necessary to postpone the second operation for some months—possibly until the child has entered its second year. At best the infant's vitality can scarcely survive these repeated operations. In view, therefore, of the necessity in many cases of early interference, and of the shock following operation at a time when least may be expected of the infant's powers of resistance, it is essential that the infant be nourished by the mother; if this is impracticable recourse should be had to a carefully modified milk food. The administration of whisky and the application of oil rubbings are important adjuncts in treatment. The most scrupulous care in the hygienic surroundings of the infant should be observed. In the interval in which perineal drainage is maintained frequent changing of the napkins, constant inspection in order to estimate the quantity of fecal matter discharged and to insure the permeability of the wound to the excretion of urine, as well as the cleansing and repacking of the wound, are essential.

Two methods of treatment in imperforation may be considered: (1) The opening of the rectum by perineal incision at the anal site; (2) the establishment of an intestinal outlet by means of inguinal colotomy after the method of Littré. Generally speaking, the inguinal incision is to be preferred when prompt relief is demanded. Where the cul-de-sac is accessible and where it can be drawn down to allow its artificial attachment to the inferior pelvic tissues the perineal operation may be undertaken, although the precise indications for its employment are not always present. It is contra-indicated where the termination of the gut is high, attached, for instance, in the neighborhood of the promontory, refusing to descend with the effort of crying and thus eluding the grasp.

The narrowness of the pelvis, characterized by the apposition of the tubera ischorium, is a proof of arrest in development of the pelvic tissues, the rectum included, and is sufficient contra-indication for the perineal operation.

Forgue bases the indications demanding perineal operation upon the condition of distention of the perineum, upon the descent of the rectum during the infant's cry, upon the actual presence of the anus and upon the detection of the cul-de-sac by catheterization of the bladder or vagina. At the same time he does not regard these indications sufficient to enlighten us as to the position of the cul-de-sac in the pelvis, that is, as to its accessibility by perineal incision.

Prolonged dissection in a difficult case is unjustifiable. The inguinal incision in such a case

The terminal attachment in imperforate rectum.

should be resorted to in preference to the perineal incision, on account of the superior precision in technic in the former, and the possibility of more exact avoidance of infection. This procedure likewise furnishes the most direct method of giving issue to the retained meconium. Exploration of the inguinal opening should be made during operation by the sound in order to determine the position and attachments of the rectum relative to the possibility of future perineal operation. Where the rectum can be brought down to such position as may permit its attachment to the perineal tissues an artificial iliac anus may be established temporarily.

Another method of operating may be followed by exploration of the position of the rectum, carried out by an incision in the neighborhood of the sacro-iliac articulation. The rectum may then be freed and its attachment to the incised perineum established. If it is found impracticable to force the rectum sufficiently downward an artificial iliac opening may be made instead of the perineal incision, the original exploratory opening being closed. This procedure, however, constitutes extreme surgical intervention and is scarcely justifiable under the average conditions in such cases. The iliac operation recommends itself in cases in which the symptoms of obstruction are grave or in which the treatment has been delayed. The infant two or three days old, with repeated vomiting, feebleness and rigors, must be the subject of prompt action, unless the obstruction appears to be due simply to a slight membranous bridging over of the anus and the cul-de-sac can be readily detected bulging against the perineum. Otherwise the indication is to open the anus at the point of election, namely, in the iliac region.

Trélat has emphasized the increasing danger of the situation as the case progresses. While in certain favorable instances the perineal incision may be utilized in the first few hours of the infant's life, it becomes, on the other hand, less and less admissible as the general accidents of the condition become more threatening. In such cases Forgue, therefore, considers it necessary to select the operation which will relieve the cause of obstruction most promptly rather than that which will restore the anatomical conditions. It is usually difficult to determine the degree of recession of the rectum and the extent of atresia. The reason for this is that when the rectum is suspended at the superior strait, the bladder and the vagina, being without support posteriorily, are apt to be displaced toward the concavity of the sacrum. The sacral excavation is, therefore, filled by these organs. As a result, exploration of the vagina or urethra by the sound is apt to be misleading, in that it does not reveal with certainty the presence or absence of the rectal ampulla, anterior to the plane of the sacrum.

Technic in Littré's Operation.

The abdominal wall is incised parallel to the groin at a distance of ¾ of an inch above Poupart's ligament on the left side. The incision must be made carefully owing to the abdominal distention, otherwise the gut may be punctured prematurely. The gut is first inspected as to its mesenteric attachment in order to determine its identity; then it is to be drawn up into the incision and stitched to the edge of the wound. The gut is afterward incised. Careful exploration by means of the sound as to the attachments and position of the rectum should then be practised in order to determine the data for future operation. The dressing should be carefully applied and frequently changed, inasmuch as the meconium and intestinal secretions are discharged in great quantity. The wound should be frequently inspected in order to detect the presence of hemorrhage, which is sometimes apt to occur from the edge of the wound. Fatal hemorrhage of this character has been reported by Hirst.

Forgue recommends the following technic in perineal incision: The infant, warmly enveloped,

is placed in the dorsal decubitus. The proper light is directed toward the field of operation. The thighs are flexed and supported. A sound is introduced in the bladder or vagina, according to the sex of the infant, in order to fix the median line as a landmark governing the direction and depth of the incision. The latter extends from the region of the anus, if it exist, or from the scrotum or fourchette, if the anus be absent, to the coccyx. The exploration should be as far backward, hugging the anterior surface of the sacrum, as possible. The anal infundibulum should be approached guardedly, and the tissues

The point of incision in Littré's operation.

examined attentively in the course of the incision. The field of operation should be carefully sponged and the connective tissue and fascial layers of the pelvic floor separated with care. Proceeding thus in order to discover the ampulla, the operator is guided partly by the sound in the urethra or vagina and partly by the examination of the tissues anterior to the sacrum and coccyx. The deeper incision should be made by means of blunt-pointed scissors. Finally, there is noticed in the wound a brownish distended sac, circumscribed by the denuded tissues. This becomes resistant and rounded, bulging toward the surface upon abdominal pressure. This is the blind extremity of the intestine. Should the rectum escape detection, it may be necessary to insert the little finger into the infant's pelvis up to the second joint; by passing a tenaculum along the finger the end of the rectum may be seized and pulled down. If it be still impossible to discover the position of the rectum the scissors are used to deepen the incision in the median line directly in front of the coccyx. The latter is then detached and removed. This resection of the coccyx increases markedly the field of operation and facilitates the exposure of the intestine. The gut is drawn down and carefully sutured to the anal region before it is incised, in order to prevent the infiltration of the surrounding tissues by the intestinal discharges and to give the rectum a fixed point of attachment. Great care should be observed in detaining the intestine at its point of future fixation after it has been disengaged and before the sutures are fully secured. Four or more sutures are introduced, an equal number on either side, longitudinally to the incision, including the skin and the wall of the intestine; by making gentle traction upon the sutures thus introduced, without tying them, the rectum may be drawn into position. A longitudinal incision of the gut is made from eight to ten millimeters in extent. The mass of meconium is then expelled. The operation is completed by the addition of sutures at the anterior and posterior commissures of the artificially-formed anus. The wound is carefully irrigated after operation and at each succeeding dressing. The napkin should be frequently changed in order to obviate the danger of irritation from the urine soaking through the dressings. The orifice should be dilated with the point of the little finger when the operation is completed. Later the finger should be introduced occasionally, at the time of dressing, and the wound should be inspected frequently in order to forestall the possibility of hemorrhage, which is likely to occur from the edge of the incision.

It may be observed here that the anal sphincter is frequently well developed in spite of the malformation of the rectum. The cicatrization which follows operation gives attachment to the muscular fibers which are present, so that the control of the rectum speedily asserts itself.

It is advisable to administer an anesthetic during operation in all cases in which careful dissection is required.

It is apparent from the foregoing that the treatment of imperforation demands, in order to determine the best procedure to be followed, first, the strictest observation of the anatomical condition present; second, a study of the condition of the infant, relative both to the urgency with which it may be necessary to relieve the obstruction, and to the ability of the infant to withstand a second operation.

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GENERAL MEDICAL TREATMENT OF SYPHILIS.

BY G. FRANK LYDSTON, M.D.,

OF CHICAGO;

PROFESSOR OF GENITO-URINARY SURGERY AND SYPHILOLOGY IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF ILLINOIS; PROFESSOR OF SURGERY IN THE CHICAGO CLINICAL SCHOOL.

THE pivotal point in the therapy of syphilis is of necessity the specific medication of the disease. In few or no instances, however, can specific medication alone be relied upon for a satisfactory result. In many instances the importance of specific medication sinks into insignificance before the general therapeutic indications present in the particular case. Specialism has done great harm by limiting the range of remedies useful in syphilis, independently of their specific effect. The success or failure of treatment in by no means infrequent instances depends more upon the general intelligence and therapeutic skill of the practitioner than upon the assiduity with which he carries out specific therapy.

The general hygienic management of syphilis is of fundamental importance. In many instances mercury and iodides act badly, simply because the patient's eliminative areas are not functionating with their normal activity. Injurious results from the drug specifics occur under such circumstances, and are explained by that explanation which does not explain, "idiosyncrasy." Ptyalism and iodism may both be avoided in many cases by attention to the eliminative functions. The ingestion of large quantities of water, with the concomitant increased functional activity of the skin, kidneys and bowels, is very useful in syphilis. This point is too frequently neglected. In giving iodides it is best, as is generally known, to administer them simultaneously with considerable quantities of water. It is impossible, however, without resulting stomachic disturbance, to give a sufficient quantity of water in this way to perfect elimination by the kidneys in certain cases in which the renal function is inadequate. It is in just such cases that iodism from so-called idiosyncrasy is liable to occur.

The best method of giving the iodide under such circumstances is to mix the daily dose of the drug with a given quantity of pure water, say from two quarts to a gallon, and instruct the patient to drink the entire amount, a glassful at a time, at intervals during the twenty-four hours. I have succeeded in avoiding iodism in this way in patients in whom the smallest quantity of iodide given by the ordinary method produced iodism.

Hot baths are a very useful adjuvant to the treatment of syphilis. They increase tissue metamorphosis, favor elimination, and necessarily enhance the therapeutic action of the mercury and iodide, while limiting any possible injurious effects of the drugs. In many instances hot baths alone will prevent injurious effects from mercury and iodide. A very hot bath of short duration, taken daily and followed by a cold shower or cold tub, is perhaps the best method of administration for the average patient. The ideal method, however, where its application is practicable, is the Turkish or Russian bath. The patient should drink large quantities of hot water while in the bath. Much of the efficacy of the Hot Springs treatment of syphilis is dependent upon the free ingestion of hot water while the hot bath is being given.

Attention to the bowels is very important in the treatment of syphilis. Ptyalism not infrequently results as a consequence of constipation. Obviously, the simpler forms of laxatives are best. The saline aperients taken hot in the morning are excellent. In many instances the substitution of a more active salt of mercury is followed by beneficial results when a tendency to constipation exists. In cases in which the bowel becomes irritated and, instead of being constipated, the patient is afflicted with diarrhea, the substitution of the tannate of mercury for the other preparations, or, in extreme cases, the use of the inunction or hypodermatic method, in lieu of the internal administration of the drug, gives excellent results.

In many instances the therapeutic efficacy of our antisyphilitic remedies is inhibited by digestive disturbance. Here, again, experimentation with various forms of the salts of mercury is often necessary to determine which particular salt is best tolerated. When the gastric symptoms are stubborn, the substitution of the hypodermic or inunction method is imperative. Lavage is sometimes of service in relieving the digestive disturbance and increasing the patient's tolerance for drugs.

When iodides are given, and the stomach and bowels are irritable, considerable trouble is often experienced in carrying out the treatment. When the fault lies with the stomach, the combination of essence of pepsin, plain or phenolated, with the iodide is useful. Taka-diastase is indicated when the irritation is largely of the bowel and starch indigestion exists.

In many instances in which syphilitic lesions, particularly of the mucous membrane, are very resistant to treatment and the patient apparently does not tolerate murcury and iodide well, the substitution of chlorate of potassium for these remedies is followed by most beneficial results. It should be given in ten-grain doses four times daily, largely diluted with water. It may be urged that this remedy acts only by antidoting certain evil effects of the iodide and mercury, which untoward effects are mistaken for symptoms of the disease itself. I am of opinion, however, that the chlorate of potassium, while in no sense a specific for syphilis, has a marked and positive action of its own in syphilitic lesions, more especially of the mucous membrane. Whether its property of hyperoxygenating the blood is responsible for the benefit derived from the drug is open to question, and is of but little moment. The clinical fact, I believe, remains the same, *i. e.*, that the chlorate of potassium is one of our most valuable remedies in the systematic treatment of syphilis.

He would be a careless practitioner, indeed, who did not realize the value of and utilize remedies of a tonic nature in the treatment of syphilis. In many instances the administration of simple tonics, such as iron and bark, will bring about a successful result in cases which are absolutely resistant to specific treatment, and which indeed seem to grow worse under it. It must be remembered that not only is syphilis debilitating, but full physiologic doses of mercury and iodide produce a distinctly debilitating effect, often with profound anemia. This anemia results not only from the perversion of nutrition caused by faulty digestion and assimilation induced by the irritating property of the mercury and the iodide, but from the special action of these drugs on the hematopoietic function.

The combination of the preparations of iron with mercurials, such as the pill duo, originally suggested by Otis, often obviates the debilitating

effects of mercury. In long-standing cases of syphilis the syrup of the iodide of iron is the most eligible preparation of the drug. The wine of coca, as suggested by Dr. R. W. Taylor, or, preferably, in my experience, the fluid extract, has a by no means unimportant action in avoiding debility in syphilitics. The combination of arsenic with the mixed treatment is useful, not only in combating debility, because of its marked tonic properties, but, as is well known, in inhibiting the effects of the iodide upon the skin. Iodide acne is very much less marked and is often avoided when arsenic is exhibited in combination with the iodide.

The cardinal principle which I desire to emphasize in the therapy of syphilis is that the physician should remember that he has to deal with three factors; first, a specific disease to be controlled by specific medication; second, a distinct, individual personality in each patient; third, the results of antispecific medication.

There is too great a tendency to treat syphilis and absolutely ignore the individual afflicted by it.

A CONSERVATIVE ELEMENT IN ACUTE MASTOID SURGERY.[1]

BY EDWIN W. PYLE, M.D.,

OF JERSEY CITY;

MEMBER OF THE NEW YORK ACADEMY OF MEDICINE; MEMBER OF THE NEW YORK OTOLOGICAL SOCIETY, ASSISTANT AURAL SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

Two years ago a country youth of healthy parentage and wholesome surroundings, while convalescing from scarlatina, suffered from an acute tympanic inflammation, followed by a purulent discharge which lasted two weeks, then abated with accession of pain and fever. The meatus was excoriated, fundus symptoms were pathognomonic, tenderness over the antrum was significant, with tumefaction extending from mastoid tip to temporal ridge. Operative suggestions did not meet with approval, but a compromise was effected in the hot bichloride douche and the patient kept under observation. Three days later all symptoms had become exaggerated, and, in addition, the integument involving the temple was red, tense, and imparted a sense of fluctuation. An immediate operation was advised and, upon this being refused, further responsibility was declined by the physician. The subsequent history was a continuation of douching, followed by gentle massage backward and downward, to dislodge pus from beneath the fascia into the external canal. Under the contracting influence of the former and the pressure of the latter, with general sustaining measures, pain, fever, and swelling subsided with recovery more perfect than could have been wrought by surgery.

The present condition is a slight tinnitus, watch-hearing distance 20 inches, and an area of cicatricial tissue in the posterior-superior quadrant. The operative indications were too pronounced to teach us conservatism under similar considerations; but the case illustrates that we do not always know what "might have been" under other circumstances, and that there are many similar experiences wherein Nature is the great physician.

Our profession has always had a monopoly in uncertain knowledge.

> "Whatever seed we may be sowing,
> The task that tries us most is—knowing."

The intricacies of the human mechanism and the spirit of life which pervades it are imperfectly understood. We are groping amid hundreds of reciprocal relations, numberless reactions, unlabeled conditions of various interpretations. When many of the grosser problems relative to function and to disease have been solved there remains the personal equation—the individualism which will always be an insuperable barrier to precise medical and surgical treatment. Our ignorance of the definite causes of pain, of that peculiar hyperesthesia which distinguishes nationalities, of the unforeseen manifestation of disease and recuperation, too often passes for real knowledge.

The illumination of the mysterious darkness that for centuries shrouded wound-infection has resulted in surgical transition with the promise of a still more brilliant day. A distinguished English physician observes that "in this very security, linked with our desires to meet the exigencies of the present, we unconsciously favor the tide of unrest which looms up with an ominous future." Though the average life be lengthened, disease and complaint are no less in evidence. People are no longer inclined to rest and to work out their health problems in natural processes, but run impatiently to surgery to have the same accomplished for them, knowing nothing of shock, nothing of failure, only its successes.

On the other hand, the specialist is apt to cultivate a morbid readiness to detect disease, to place the standard of health too high for practical purposes, forgetting that a good degree of being is compatible with innumerable departures from the normal standard. Health is relative; it is not a direct dial, pointing to zenith, but an arc of considerable latitude.

The pendulum swing between medicine and surgery tends to extremes. The excursion from the former to the latter in appendicitis has met with reaction in favor of time, but not until the penalty was paid in operating too early, thereby confounding the diagnosis with ailments of gastro-intestinal character. In gynecology pelvic surgery has become a too-absolute specialty, dissociated with the relative importance of the great sympathetic nervous system and the general field of scientific medicine. Dr. Goodhart tells us: "Organs have suffered from the lust of the people for operations and from the insufficiently non-repellant attitude of surgery."

Whereas these remarks are general, recent articles, differing from the conservatism of text-

[1] Read before the Otological Section of the New York Academy of Medicine, Oct. 9, 1901.

books, indicate that we are becoming more extravagant in our assertions, and are gradually approaching the surgical maelstrom. One writer makes the statement that mastoid implications are present in all severe cases of influenza, and that meningitis, sinus thrombosis, and other intracranial complications are becoming more frequent and alarming with each epidemic. Some deplore one or all of the abortive measures while observing the patient. Some would subject the mastoid to the same exploratory procedure as in abdominal surgery; and one is spreading the doctrine that mastoiditis is generally due to uricacidemia, and recommends operation when pain is elicited by pressure over the antrum, without waiting for the fundus symptoms. We have no desire to criticize the respective authors, or the specific conditions under which these suggestions originated. We question only the feasibility of general application and of inculcating radical sentiments to influence those of lesser attainments in aural surgery.

Were all equally skilled in technic and were congestion and granulation essentially operative, the blunt of exploration in doubtful mastoid necessities might be more cheerfully recommended; but under the existing conditions there is not an otologist who would not trust to antiphlogistic remedies until indications were pronounced, rather than submit himself to inexperienced hands, notwithstanding acute cases require less skill for successful performance. It is no trivial observation that physicians have a profound respect for their own end of the lash, and that inexperience is neither modest nor cautious. However commonplace operations may appear to the surgeon, to the laity they present serious phases that demand deliberate and conscientious consideration. The ablation of an apophysis costs little effort, but to the patient it may mean many weeks' absence from occupation as well as the dangers from the lack of thoroughness on the part of the operator. When we note how rarely meningitis accompanies acute mastoiditis, and how seldom in general practice brain complications are traceable to aural diseases as compared with other causes, surgical intervention should be more circumspect than in the chronic forms.

Were all equal as diagnosticians there would be less danger arising from misinterpretation of symptoms. The poet was not far wrong respecting mastoids when he said of affairs in general, "Things are not what they seem." After years of painstaking observation, who is not convinced of his diagnostic errors? Schwartze echoes this sentiment in his maturer writings. We grant that large experience gives intuitive knowledge; but wisdom, which is knowledge in its application to the exigencies of human necessities, is more apparent after the operation. One is stampeded to surgical inclinations because the bacteriologist announces the presence of streptococci, apparently unmindful that these organisms may exist in quantity with harmless effect; another, because the discharge is disproportionate to the size of the tympanum, a condition which may clear up speedily, and which is not infallibly due to mastoid complication.

Abnormal temperature, especially in childhood, may be coincident, making differentiation impossible, until the *primæ viæ* have been relieved and time has been given for the development of other symptoms to denote local or general disorder. Pain is so relative as to make its significance most difficult to gauge in the young and the hypersensitive. A persistence of this symptom—individualism rather than disease—has led to total ablations when there was no mastoid pathological evidence of the necessity. Tenderness over the antrum is equally misleading, yields frequently to the element of time, and is rarely in itself an operative indication.

The *tout ensemble* of the case should be considered—the primary or secondary nature of the attack. If primary, with resisting muco-periosteum and normal phagocytosis, amid conducive surroundings, the less skilful operator may well delay in reasonable doubt. If there be persistent narrowing of the deeper meatus, with concomitant symptoms of pus in the mastoid cells, or if the attack be engrafted upon a residual condition in an individual of vitiated blood, poor nourishment and ill environment, the early operation emphatically takes precedence. But when such complex symptoms are to be weighed in the balance, which can be trusted the more, the diagnostic ability of limited experience, or the granulation bulwark with which Nature invariably guards herself against pathogenic invasion?

To counsel delay with the use of antiphlogistic measures in acute mastoid inflammation is wiser than to encourage hasty operative procedures under blundering conceptions. The truth of this is most apparent to those who see the result of inefficient surgery, and emphasizes the necessity for careful instruction in such measures as all can apply with equal celerity and exactness. In no other ailment is it more imperative to know the significance of early rest and medication to reduce arterial tension, the importance of paracentesis to unload obstructed capillaries, the value of the ice-coil to retard bacterial activity, the wisdom of thermal douching to prevent mural implantation, to relieve congestion, edema, and pain. In no other ailment is it more imperative to mitigate suffering for a reasonable period of twenty-four hours. Even in recourse to analgesics, the periosteal character of the pain and the fact that temporary relief is sometimes the beginning of convalescence should be borne in mind. While observing the patient, every local, general, and detergent effort should be made to abort operative necessities. The intelligent application of such is not so confusing as poor surgery, nor should an occasional failure establish a general abolition.

The element of self-limitation has revolutionized therapeutical methods. While schools have contended over treatment, many diseases remain

uninfluenced except in response to the rule of Nature. Fehleisen discovered the streptococci which explain the phenomena of erysipelas; but why this process is propagated only to a certain period, when the organisms disappear, is still a mystery.

The ear is a minor part of God's handiwork, but governed by the same blood and sharing in the same law of limitation. Its anatomical adaptability is more complex than that of any other organ. To receive, to transmit and to analyze, instantly, the vibrations from whatsoever source, from all the varied noises and harmonies that can be produced in one's immediate vicinity, is marvelous beyond explanation. But the process of reparation is not dissimilar, nor is the manifestation of protective wisdom the less, because of this exalted function.

A careful search into aural histories and a close scrutiny of membranæ tympani must convince every observer that the natural tendency of acute otitis media is to recovery, even under questionable treatment. Bezold states that nine per cent. of acute middle-ear suppurations involve the mastoid to such an extent as to make spontaneous recovery improbable. These statistics may apply to crowded cities, but they are not true respecting small towns and environments. There is no more significant fact than that the general practitioner is greatly in evidence during epidemic influenzas, and that his acute aural cases involving the mastoid rarely require operative necessities.

In defense of this assertion we give the following approximate statistics, gathered from the experience of twenty-five physicians variously located. All are representative practitioners of more than ordinary acquirements, and several are surgeons of excellent repute. These physicians aggregate in practise five hundred years, and have had eighty cases of acute mastoiditis following middle-ear inflammation come to operation; or, in other words, each of these physicians has had an operative case once in about six years.

These numbers will seem incredible to those accustomed to the frequency of acute mastoiditis in many of our institutions especially fitted to treat this affection; but they are verified by noteworthy experiences. Dr. G. K. Dickinson of Jersey City, distinguished for diagnostic, medical, and surgical ability, reports that in twenty-four years he has not seen more than six cases. Dr. John Seward of Orange, a most conscientious observer in the interest of his *clientèle,* has had three cases in thirty-two years. Dr. Brodnax, an encyclopedia of medical knowledge pertaining to his country in Louisiana, has never known such a complication. In one instance only was there an adverse report. Dr. Guthrie of Wilkesbarre believes that operative cases of acute mastoiditis following grippe epidemics are relatively numerous and particularizes the years 1889-90.

The complete report, however, conforms to my own experience. From 1873 to 1897, devoted exclusively to general practice, during which time I had the medical supervision of several hundred families, two cases of acute mastoiditis came to operation and four of subperiosteal pus accumulations made excellent recoveries under the Wild's incision. From 1897 to date almost exclusive study has been given to aural diseases, yet during this period there has not been the suggestion of an operative case in my medical acquaintanceship, which confirms that but little was overlooked in earlier years, and only eight have been referred out of all the experiences of fellow practitioners.

The explanation must be sought in two conditions. First, it emphasizes that peculiar reciprocal relation between demand and supply. In the abundant opportunity of this world honest effort can invariably find the object of its search. We have only to prepare ourselves for definite work, and then await the tide of human affairs. It verily seems that were one to devote his special energies to the repair of dislocated necks, under the patronage of an endowed institution, he would soon be confronted with a thriving business. A second explanation is in the individuals and their surroundings, in the relief afforded by treatment, and in the protective influence of Nature. The operation of natural laws varies with different orders of beings through the influence of habit, heredity, and environment. Though Nature does not directly provide man with a home or a dress suit, it must be admitted that in most acute cases and in many chronic conditions she guards well her own interest, even when both physician and surgeon are *hors de combat.*

In our institutions the facts respecting successive operations point to error on the part of conservatism; but to advocate exploratory operations or early operative procedures in acute mastoid inflammation, before the fundus symptoms are significant or before local and general antiphlogistic measures have had due prominence, proceeding from medical centers to go throughout the land to influence those who treat under circumstances differing materially from our own, is too radical to secure the greatest good to the greatest numbers.

Experience gained and conclusions formulated from clinical services in a large city like New York are but relative to a class of people more or less vitiated by dyscrasias and burdened by unwholesome surroundings. Knowledge derived from such sources should not be applied with too great fervor in those sections of country where blood, food, and climate are most conducive to recuperation, and where tissue-resistance is more potent to limit extension.

In the early operation, the experienced surgeon with clear conception and faultless technic *may* save life and function; but in the hands of the many the protective and the reparative processes of Nature will be abetted *more* and embarrassed *less* by rational antiphlogosis than by meddlesome surgery.

612 Bergen Avenue.

THE CLASS OF CASES OF SIMPLE CHRONIC GLAUCOMA IN WHICH OPERATION IS NOT ADVISABLE.[1]

BY CHARLES STEDMAN BULL, A.M., M.D.,
OF NEW YORK.

In the years which have elapsed since Von Graefe first suggested the operation of iridectomy for the relief of glaucoma, our views as to the value of this method of treatment in all forms of glaucoma have undergone material modification. Your Chairman has asked me to present to the Section on Ophthalmology a paper upon the subject of "those cases of glaucoma in which operation is not advisable," and, in accepting his invitation, I have decided to confine what I have to say to the subject of *simple chronic glaucoma.*

The complete divergence of opinion as to the relative value of various methods of treatment in simple chronic glaucoma is probably due to a lack of precision in interpreting the real meaning of the various symptoms as they are observed in different cases. In the actual state of our knowledge, it is difficult always to distinguish between the intermediate forms which present themselves to our notice. It is known to us all that some cases are called simple chronic glaucoma by one class of authors, while the same are classed as inflammatory or irritative chronic glaucoma by other authors of equal repute. May it not be wise to regard simple chronic glaucoma as a disease in many respects essentially different from glaucoma with exacerbations? We should also never forget that the symptoms which are supposed to characterize simple chronic glaucoma, viz., reduction of vision, narrowing of the visual field, and excavation of the optic disk, are not characteristic of the disease, for they are all met with in simple atrophy of the optic nerve.

I am inclined to think, partly from my own experience and partly from the expressed opinions of some of my colleagues on the subject, that the unfavorable view taken of operative procedures in simple chronic glaucoma is often due to our errors in diagnosis. We must learn to distinguish absolutely between simple chronic glaucoma and a diseased condition of the optic nerve with pre-existing physiological excavation, and the distinguishing sign is the increase of the intra-ocular tension. Without this *increase of tension* there is no *glaucoma.* Here is the great difficulty, for in simple chronic glaucoma the increase of the intra-ocular tension is often so slight as to be far from easy to recognize, and in these cases we may readily confound the disease with atrophy of the optic nerve. Moreover, in this form of glaucoma increased tension is not constantly present, and may be absent for hours and even days in succession. In fact, as we know, the disease presents no active symptoms and it is difficult to fix the date of onset. These periods of increased tension should be searched for with the finger-tips placed on the sclera itself and not on the closed lids. I make the examinations frequently at different hours of the same day or different days. I think we are justified in saying that in every case of simple chronic glaucoma there is a slow but progressive increase in the tension, not always to be recognized at first, but which becomes demonstrable after repeated examinations.

Some writers are of the opinion that this false or pseudoglaucoma simulates the real glaucoma in about half the number of cases of so-called simple glaucoma. If we confound the two diseases with each other, we may be guilty of a double error, for the false glaucoma should never be treated surgically, and, if the case be a true glaucoma, we may deprive the patient of its real surgical remedy. A possible explanation of the failure of both iridectomy and sclerotomy to bring about a cure in all cases in which the tension is not increased may be in the fact that they exert no effect in reducing normal tension, but only produce this effect in cases in which the tension is increased. In studying our cases of glaucoma, we may sometimes gain assistance from observing the existing conditions of the angle of the anterior chamber. The form of the filtration angle varies with that of the ciliary muscle. In emmetropic eyes the angle is wide and the peripheral origin of the iris is variable. In hypermetropic eyes, the peripheral origin of the iris is displaced inward toward the axis of the eye, and the angle of the chamber is narrowed and pointed. In myopic eyes, the origin of the iris is displaced outward away from the axis of the eye, and the angle of the chamber is rounded and wider. Hence the angle is more apt to be closed by the glaucomatous condition in hypermetropic eyes, and less so in myopic eyes.

A careful and frequently repeated study of the field of vision will often yield valuable information, helping us to a decision for or against operative interference. The defects in the field in glaucoma often represent peculiar types, and it should here not be forgotten that disease of the retinal vessels sometimes causes defects of the field of vision which show a certain analogy with glaucomatous defects. We do not always meet with the typical contraction on the nasal side, for there are frequent exceptions. It is also well to remember that the personal equation of the observer should always be considered in examinations of the visual field. To one observer a field may appear contracted and to another observer uncontracted. But if we find that the visual field is on successive days and at repeated examinations contracted on the nasal side or concentrically, we may be sure that the disease is progressing. If the field be examined with white objects under small visual angles, according to the plan recommended by Bjerrum and Meisling, or by squares of gray paper, as suggested by Holden, we can often demonstrate a much greater functional disturbance of the field of vision than by the ordinary perimetric examinations.

[1] Read before the Ophthalmic Section of the Academy of Medicine, Nov. 18, 1901.

I agree fully with De Schweinitz that the existence of scotomata in the field aids us in forming a prognosis in simple glaucoma. They are frequently the forerunners of subsequent peripheral defects in the visual field. I do not consider, in any doubtful case, that the field is thoroughly mapped out until each meridian has been examined from fixation point to periphery and under varying degrees of illumination, both for white and colors. The scotomata may be central or paracentral, but are topographically different from those met with in atrophy of the optic nerve. We know that the prognosis depends on the type of the disease and the stage of its development. Much also depends, in the chronic cases, upon the amount of degenerative change in the retina, measured by the defects in the visual field.

We may also gain some insight as to the result of an operation in a given case from the condition of the iris and its reaction to myotics, and in some cases this behavior of the iris furnishes a good prognostic guide for operative interference. The most important point in the management of chronic glaucoma is that our *diagnosis* should be *correct,* and we should be careful never to base our diagnosis upon the presence of one or even two symptoms, but we must look for them all, even if we are forced to reserve our diagnosis until the patient has been examined a number of times.

The study of the disk in chronic glaucoma is often misleading. Total excavation of the disk as far as its edge often exists without any increase of tension demonstrable by the finger. Schweigger is probably correct in saying that the term "physiological excavation" should only be employed when it involves more than one-third of the papilla and shows at the bottom the lamina cribrosa. The ophthalmoscopic picture of physiological excavation may be produced by glaucoma, and a large physiological excavation with discoloration of the disk often cannot be distinguished from a pressure excavation. Here the diagnosis is very difficult, for the ophthalmoscope cannot tell which process came first. The pre-existing physiological excavation, in consequence of a secondary atrophy of the optic nerve, may eventually coincide all round with the scleral margin of the disk, and give a picture of "typical glaucomatous excavation" without glaucoma. In the optic nerve atrophy, due to spinal disease, we have such a clear clinical picture that we are not likely to err in our diagnosis. In the rare primary atrophy of the optic nerve, however, we may easily err and confound it with chronic glaucoma. Hence these cases should be carefully followed for a length of time. The condition of the iris and pupil is not always diagnostic. A chronic glaucoma may go on to blindness without affecting the reaction of the iris to light. The pupil may be perfectly round and yet the iris be dilated and movable. The condition of the anterior chamber is not always diagnostic, for, though generally shallow in chronic glaucoma, it may regain its normal depth.

I have seen the diagnosis of glaucoma made from the presence of arterial pulsation. This I consider a mistake. The arterial pulsation is probably often present when not visible. When present in connection with the other symptoms, I regard it as a grave symptom, indicating the possible occurrence of retinal hemorrhage after iridectomy.

The question of tension is probably the most difficult one to settle in chronic glaucoma. Schweigger says that there are *physiologically hard* and *physiologically soft* eyes, and that he does not recognize any normal limit for the tactile hardness of eyes, because the resistance to the finger depends not only on the intra-ocular pressure, but also on the resisting power of the sclerotic, which is very different in different individuals and at different points. In simple chronic glaucoma the increase of tension is very apt to appear in a sudden attack, which at first lasts a brief period and then disappears; but as the disease becomes more chronic, the increase of tension occurs more frequently and lasts longer, until in the pronounced cases it is a permanent feature.

In What Class of Cases of Simple Chronic Glaucoma is Operative Interference Not Advisable?—This question may perhaps be best answered by a process of exclusion.

My experience with sclerotomy has not been satisfactory. It has not in my experience given lasting results, though it may be regarded in a measure as preparatory to iridectomy in cases with very high tension, or, in very nervous, uncontrollable patients, as a palliative. What little I have to say under the head of operative interference will therefore be confined to iridectomy.

Simple chronic glaucoma should always be operated on early in the disease, before much contraction of the field has occurred. The operative effect of iridectomy is more certain and undeniable the earlier it is done. The slightest narrowing of the field, whether for form or color, demands operation once our diagnosis is made. The curative action of iridectomy stands in direct proportion to the increase of tension. Early iridectomy, while the iris is still mobile, the field but little contracted, and the cupping of the disk slight, commonly arrests the disease, at least for a prolonged period, and preserves what sight remains. *Done early,* it offers the best prospect for the arrest of the process, and its effects are either permanent or very prolonged. If the tension is lowered after iridectomy, a favorable result is to be expected. If the tension remains high after operation, we must look for an unfavorable result. If, under the use of myotics, the vision improves and the field widens, it is almost certain that an iridectomy will give a good result. If, in spite of myotics, the visual acuity remains stationary and the field does not improve, the effect of the operation will be less favorable.

In advanced chronic glaucoma with great contraction of the visual field, marked impairment

of the vision, undoubted increase of tension and deep cupping of the disk, the prognosis for operation is more than doubtful; it is distinctly unfavorable, and iridectomy should not be done. In those cases in which the contraction of the visual field has approached close to the fixation point, even though the central vision is still good, iridectomy is positively contra-indicated; for the contraction of the field is not arrested, is often made immediately worse, and may be followed by total loss of central vision.

What Can Be Done for Those Cases in Which Operation Is Not Advisable?—Something there is in the way of treatment which may retard the progress of the disease, even though it does not effect a cure. If we can bring about contraction of the iris and lower the intra-ocular tension, even though the field may not be widened nor the vision improved, we at least render the progress of the disease more slow, and for a time maintain the vision at the existing standard. For these results we rely mainly though not entirely on myotics. These are of no use unless they contract the iris and lower the tension. They can never bring about a radical cure. Hence they are of little use in old, advanced cases of glaucoma, in which the iris is atrophied. Of the two myotics, eserine and pilocarpine, eserine is the more powerful agent, but it is the more irritating and tends to develop ciliary congestion. Its use is best combined with cocaine, which contracts the caliber of the ciliary blood-vessels and diminishes the sensibility of the ciliary nerves. It should be remembered that the congestion of the ciliary processes induced by eserine often entirely defeats its desired effect, and, moreover, its prolonged use tends to cause a follicular conjunctivitis in many eyes. The combined effect of eserine and cocaine is myosis with reduction of tension, due to the paralyzing influence of cocaine on both nerves and vessels, which prevents the swelling and congestion of the ciliary processes induced by the eserine. Eserine should be used in the minimum amount and with the minimum frequency which suffice to contract the iris and keep it contracted. The form in which we use the drug is a matter of some practical importance.

The salicylate and hydrobromate compounds are more permanent and less changeable in solution than is either the sulphate or hydrochlorate. When the effect of the eserine in contracting the iris and lowering the tension has been produced, it is well to continue these effects by the use of pilocarpine. Another point to be remembered is that eserine sometimes fails to lower the tension, while pilocarpine succeeds. Wicherkiewicz thinks that this is probably due to the following existing conditions: In a highly developed condition of Müller's fibers of the ciliary muscle, eserine causes marked swelling of the ciliary processes. If in such a case there are a small eyeball, a narrow circumlental space, and a large lens, eserine may bring about complete closure of the space between the vitreous chamber and the posterior chamber, which causes marked obstruction to the exit of fluid from the vitreous into the anterior chamber. This condition does not occur when pilocarpine is used. Hence after the eserine has drawn away the iris from the angle of the anterior chamber and has lowered the tension, it is wise to change to pilocarpine, and allow the congestion of the ciliary processes to subside.

The primary effect of the eserine may be assisted by a hypodermic injection of morphine, five to eight minims of Magendie's solution, which lowers the blood-pressure, lessens secretion and promotes contraction of the iris. I am in the habit of beginning with a solution of eserine salicylate, gr. $^1/_{10}$ to $^1/_4$, and cocaine hydrochlorate, gr. ij, and after two or three days' use of this solution, instilled two or three times a day, I change to a solution of pilocarpine hydrochlorate, gr. ij, and cocaine, gr. i, used with the same frequency. If I find after a time that the iris tends to dilate or the tension to rise, I revert to the use of the eserine solution for a few days.

Some of the preparations of pilocarpine contain an impurity in the form of *jaborine*, an isomer of pilocarpine, which has a mydriatic action on the iris. This is not a definite single compound, but a mixture of pilocarpine with closely-allied alkaloids, like isopilocarpine. Attention has been called to this point recently by Lilienfeld (Centralblatt für prakt. Augenheilkunde, May and June, 1901), who suggests that the pilocarpine preparations should be first subjected to careful physiological tests, before being placed on the market. This would minimize this danger.

I have occasionally found that gentle massage of the eyeball has been followed by improvement in the vision and deepening of the anterior chamber, and I therefore advise it twice a day as a part of the routine treatment. Before instituting any local treatment, these eyes must be carefully examined for any refractive error, and, when found, this must be fully corrected by glasses. The habits of life of the patient should be regulated as far as possible, and all excesses of every kind should be avoided. The eyes should be employed in close work as little as possible, and with frequent periods of rest. If there be a tendency to constipation, this should be regulated, for it is well known that aperients sometimes produce a very decided effect on the tension and congestion of the eye. Avoidance of everything tending to the production of anxiety or mental disturbance is an additional precaution to be distinctly impressed upon the patient.

Regular hours and habits, and sound, refreshing sleep are all important in the management of this rather hopeless class of cases. Any existing gouty or rheumatic tendency should be treated by appropriate remedies, preferably the sodium salicylate, alternating with alteratives and strychnine.

A RESUME OF THE SUBJECT OF ACTINOMYCOSIS, WITH REPORT OF A CASE OF ACTINOMYCOSIS ABDOMINALIS.[1]

BY A. VAN DER VEER, M.D.,
AND
ARTHUR W. ELTING, M.D.,
OF ALBANY, NEW YORK.

THE polymorphous fungus causing this lesion belongs to the general group of *Oöspora* and was first recognized by Von Langenbeck in 1845. In 1857 Lebert described a case of thoracic actinomycosis observed by Louis in 1848, and published illustrations of the actinomyces in his Atlas. He believed, however, that these fungi were the detritus of cysticerci.

From 1868 to 1875 Rivolti and Perroncito demonstrated that the so-called sarcomata of the jaws of cattle were due to actinomyces; Bollinger, at the same time, recognized the characteristic fungus in "lump jaw" in cattle, and referred it to the botanist Harz, who classified and gave to it the name of *Actinomycosis*.

Actinomycosis in human pathology dates from the works of Israel in 1878, when this author and Ponfick recognized the identity of bovine and human actinomyces, even before the transmissibility of the disease had been proven by inoculation experiments. These latter were not successful until 1880, when Johne produced the disease in a cow inoculated with some of the actinomycotic granules obtained from an animal of the same species. In 1883 Israel successfully inoculated the human actinomyces into a rabbit.

During the decade from 1880 to 1890 there were published two important articles, *i. e.*, the classical monograph of Israel in 1885, with a report of 37 cases of human actinomycosis, comparatively little having been added since; the second article was published by Böstrom, in which he paid special attention to human actinomycosis, and the transmissibility of the disease through vegetable life. During the past decade much interest has been aroused in France, and among the best of the numerous publications is the exhaustive monograph of Poncet and Berard. To-day the American literature on the subject is very extensive, the disease no longer being regarded as of infrequent occurrence.

A great variety of names has been proposed for the fungus, and it has often been confused with Madura foot. The true distinction, however, between Madura foot and the group of pseudo-actinomycoses was clearly established by Blanchard in 1895.

In infected tissue, contents of abscess cavities, or discharge from fistulous passages, the actinomyces are usually present in the form of small, yellowish, more or less opaque granules, in size from .15 to .75 mm., although larger granules often occur. They are usually gravish-white, transparent, easily broken up, and of the consistence of soft jelly. As they get older, the granules grow more opaque and yellow, and, finally becoming impregnated with calcium salts, give rise to structureless concretions.

The actinomyces stain readily with ordinary basic aniline dyes, are not decolorized by Gram's method, are facultative anaerobes, and grow upon most of the common bacteria culture media. The best temperature for their growth is from 33° to 37° C. Even under the best of conditions their development in culture is slow, requiring from five to fifteen days. Very often actinomyces are commingled with other micro-organisms. These latter usually grow more vigorously, and tend to obscure the former. The most common of these micro-organisms are staphylococci, streptococci, the colon bacillus and leptothrix buccalis.

Actinomyces possess a surprising ability to develop upon cereals and vegetable media in general. At 45° C. the growth of the fungus is arrested, and it is rapidly destroyed at 60° C. The spores are more resistant to injurious agencies than is the mycelium, although less so than the spores of bacteria. Greater resistance to noxious agencies is possessed by the spores grown upon cereals, experiments by Berard and Nicolas showing that some spore had lived as long as four years upon certain cereals even under unfavorable conditions.

There are a few cases in record in which it seemed probable that man had contracted the disease from animals, but it would appear that prolonged, intimate and close contact is necessary, which seems to indicate that the virulence and infectiousness of the actinomyces are diminished in animal organisms.

The consensus of opinion is that the great carriers of actinomycotic contagion are the different forms of cereals, especially barley, and that through their agency both man and the domestic animals become infected. Pieces of cereal grains have been found in the focus of infection. Vegetables, especially those grown above ground, may also convey the organism to man and to animals.

Men are much more frequently infected than women, probably as a result of their being more exposed to infection. Of 357 cases of human actinomycosis collected by Hutyra, one-third occurred in the third decade of recognition of the disease.

Four chief avenues of infection have been distinguished, viz: (1) through the mouth and pharynx; (2) through the respiratory tract; (3) through the gastro-intestinal tract; (4) through skin-wounds, etc. There is also a group of cases in which no definite portal of entry is discoverable.

Microscopically, a focus of actinomycotic infection is characterized by a central zone that contains the fungus, either free or attached to the foreign body by means of which it gained access to the part. This zone usually contains more or less cellular detritus and the products of degeneration. The blood-vessels in the immediate vicinity of the focus are rarely obliterated.

[1] Abstract of a paper read at the semi-annual meeting of the Medical Society of the State of New York, October 16, 1901.

All the actinomycotic lesions can be divided into two great classes: (1) The neoplastic type, which is usually found in horses and cattle; (2) the inflammatory type, usually found in man and hogs.

The neoplastic type is the form in which spontaneous recovery not infrequently occurs. In the inflammatory type the process of destruction exceeds that of defense both in rapidity and in intensity, and tends to the production of sinuses but not of large abscess cavities. These latter are usually the result of secondary infections.

The muscles and bones afford a very unfavorable medium for development or extension of actinomycotic foci. The tendency to the formation of fistulous passages is very characteristic, the discharge presenting marked differences. In some instances it is serous, in others sero-purulent and in still others distinctly purulent. Secondary infection exists in practically all fistulous cases. Another characteristic feature of actinomycotic lesions is the tendency to extend by continuity rather than by metastasis.

Poncet and Berard propose a division of actinomycotic infections into the following groups: (1) Cervico-facial; (2) thoracic; (3) abdominal, and (4) cutaneous; foci in bone, the spinal column, the genito-urinary organs, the brain, special organs of sense, etc., being regarded as complications.

Statistics prove that about 55 per cent. of the cases are of the cervico-facial type; 20 per cent. thoracic and pulmonary; about 20 per cent. abdominal and about 5 per cent. of a variety of types.

There has never been a definitely authenticated case of primary abdominal actinomycosis reported which did not originate from the gastro-intestinal tract, adhesions and abscesses being the characteristic features, the abscesses always resulting from a secondary infection. The actinomyces gain access to the stomach either with animal or with vegetable food, most commonly the latter. Neither the gastric juice nor the bile appears to have any very decidedly harmful effect upon the fungus. The different portions of the alimentary tract then seem to be affected in direct proportion to the length of time that the intestinal contents remain in the different parts.

Intestinal actinomycosis appears first as a small nodule in the submucosa. This undergoes degeneration at its center, and presently gives rise to a small ulcer with undermined edges which may extend either by progression or by confluence of several small ulcers, which, in certain instances, heal and leave irregular pigmented scars. As the process extends there is a distinct tendency for the involved portion of the intestine to become adherent to other portions of the intestine, the abdominal viscera or the abdominal wall, preventing, in most instances, a perforation into the general peritoneal cavity. When the process originates from the colon, *i.e.*, a portion of intestine not provided with a mesentery, retroperitoneal abscess is not an uncommon complication.

In some instances the intestine adherent to the abdominal wall has perforated externally, forming a fecal fistula. Perforation into the bladder is of rare occurrence, although cases have been reported by Böstrom, Hesse, Billroth and others. The prostate has, in a few instances, been involved by extension of the disease from the rectum. In women the pelvic viscera have sometimes been extensively involved by extension of the process from the primary intestinal focus. In all the literature Grill was unable to find a single authentic cases in which abdominal actinomycosis had extended through the lymph-channels. Metastasis, in the great majority of cases, takes place through the veins rather than through the arteries. Among the secondary lesions of abdominal actinomycosis those of the liver are the most frequent, involvement occurring either by continuity, contiguity or metastasis. In 20 of the 30 cases of hepatic actinomycosis collected by Aribaud the primary focus was intestinal.

In from 50 to 60 per cent. of abdominal actinomycosis the primary focus is in the cecum, appendix, or contiguous portions of the ileum and colon *i.e.*, in the right iliac fossa; in from 10 to 15 per cent. of the cases in the rectum. In comparatively few cases has the primary focus occurred in the small intestine. There thus remain a certain number of cases in which the primary focus is undetermined, even though careful postmortem examinations have been made.

Grill has distinguished three typical periods in the course of abdominal actinomycosis: (1) The initial period; (2) the period of tumor formation; (3) the period of fistula. To these three periods Hinglais has added a fourth—a period of repair. Although in certain cases this or that period may predominate or be entirely absent, nevertheless the periods mentioned are usually characteristic of the disease when localized in the abdomen. Pain, while usually present, is rarely severe, being rather a sensation of tension and discomfort.

In rectal actinomycosis the fistulæ usually open about the anus and occasionally in the loin or above the pubis. Spontaneous recovery is possible, even though there be extensive infiltration of the abdominal wall with numerous fistulæ.

The duration of the disease is quite variable—from a few weeks to several years.

The prognosis in abdominal actinomycosis, even though the process be extensive, is not necessarily hopeless, for there are on record a large number of cases in which recovery resulted. In general one can say that those cases offer the best prognosis which are most amenable to surgical treatment, *i.e.*, the abdominal form rather than the thoracic. The oldest cases are most unfavorable because of the possibilities offered for extension or metastasis. In 77 cases of abdominal actinomycosis treated surgically Grill found 22 recoveries, 10 improvements and 45 deaths.

It is practically impossible to recognize abdominal actinomycosis in its earliest stage, al-

though examination of fecal matter has, in a few instances, led to a comparatively early diagnosis. In the later stages, when tumefaction is extensive, with foci of suppuration and numerous fistulæ, and the discharge contains characteristic granules, diagnosis is comparatively easy. Sarcoma, carcinoma and tuberculosis of the cecal region must also be considered in differential diagnosis.

Greater care in the selection and preparation of cereals and vegetables would certainly diminish the number of infections by this avenue. Since thorough cooking destroys the spores of actinomyces in flesh, prevention of the infection from this source would appear to be comparatively easy.

Therapeutically a so-called specific for actinomycosis has never been discovered, although iodide of potassium possesses certain qualities which bring about favorable results. In general, iodide of potassium appears to act more satisfactorily and effectually the earlier in the course of the disease it is administered and in large and gradually increasing doses. Experiments have shown that it has little or no effect upon the growth of the actinomyces on artificial media.

Billroth, Kahler and others have tried the effect of tuberculin, improvement seeming to have followed its employment in a few instances. An interesting fact brought out by Kahler, Illich and Wolff, and confirmed by Arloing, is that men and animals infected with actinomycosis react to Koch's tuberculin the same as do cases of tuberculosis. Ziegler has reported a favorable result following the injection of protein obtained from cultures of the staphylococcus pyogenes aureus. Gautier has seen favorable results follow the use of electrolysis, and Braum recommends the use of Fowler's solution. In general, however, combined medical and surgical treatment would appear to have produced the best results, especially in the forms of actinomycosis more superficially placed.

It is frequently difficult to determine the extent of the process and consequently the extent of surgical intervention required. Careful exploration of the fistulæ and foci should be practised, so far as possible, with the removal of as much diseased tissue as consistent. If apparent recovery occur, the case should nevertheless be watched for several years because of the great possibility of recurrence.

Case I.—A. S., Castleton, N. Y., aged forty-five years, native of United States; carpenter by occupation; married. Admitted to Albany Hospital, February 22, 1901. Provisional diagnosis, sarcoma of cecum or mesentery; corrected diagnosis, actinomycosis abdominalis. Treatment, operative and medical. Family history good. Patient had usual diseases of childhood; typhoid fever at the age of fifteen; was very ill, but made a good recovery. Denies venereal disease of any kind. Patient has partaken sparingly of stimulants; smokes and chews tobacco somewhat excessively; has associated much with animals; never worked in grain. General health always good; no serious injuries.

Present illness began November 27, 1900. While at work had pain in stomach; however, finished day's work and then tried various remedies without relief. Had sharp cramps in lower portion of abdomen; very severe for three or five minutes, recurring at first every half hour or so. Did not obtain relief for a week, although under the care of a physician. Pain gradually diminished, but did not disappear for eight weeks from onset. No chills, fever or vomiting, but slightly nauseated. Pain not localized nor radiating, but seemed to patient to be in abdomen. No jaundice; no distention of abdomen that patient ever noticed. Bowels and kidneys normal in functions.

January 1, 1901, patient was able to be up and around and improved quite rapidly. Middle of January he superintended an ice gang. February 1st, as well as usual, and had regained normal weight. February 20th, still feeling as well as ever, but noticed a small tumor in region of umbilicus, for which he came to the Albany Hospital February 22d, under my care.

Physical Diagnosis.—Distinct tumor, size of a fist, in right iliac region; smaller tumor, inflammatory in character, evidently containing pus, at umbilicus; smaller masses to be felt through and in abdominal wall, giving an impression of sarcoma of the mesentery. Heart, lungs, spleen and stomach normal. Liver dulness extended about one finger-breadth below costal margin. Skin over tumor red, with yellow spot in center. Urine amber, 1030, acid, no albumin nor sugar, sediment slight, and a very large number of calcium oxalate crystals present. Blood examination revealed leucocytes, 18,500; red cells, 4,710,000.

Operation February 28, 1901: Abdominal incision 6 cm. long in median line. Peritoneum found adherent to coils of small intestines in various places, with a flattened tumor, size of half a hand, springing from right iliac crest. While supposed to be a case of multiple sarcoma of the mesentery, it differed from any case I had ever seen. There was a distinct hardening of this portion of the peritoneum extending to the umbilicus, along the course of the urachus and round ligament of the liver, with an abscess presenting just under the skin. The latter was not opened for fear of infecting the peritoneum. Incision in peritoneum closed wtih fine silk, continuous sutures; wound closed with interrupted silkwormgut sutures and iodoform gauze introduced in lower end of incision, then standard dressing. The gauze was removed on the fourth day, and drainage encouraged thereafter, the abscess of the umbilicus having opened and discharged a creamy, flake-like substance. Specimens of discharge and tumor were saved, but lost later, and did not reach the Bender Laboratory for examination.

The patient was put upon syrup of hydriodic acid, strychnine and elixir of calisaya, with as good nourishment as possible.

Not feeling at all certain of my diagnosis and fearing the possibility of actinomycosis, about April 1st I asked Dr. Elting to look the patient over carefully and make a thorough examination

Fig. 1. Abdominal actinomycosis. August 3, 1901.

of the discharge. This was done and the case found to be one of typical actinomycosis. Coverslips stained by Gram's method showed the characteristic fungi. Cultures from several of the ab-

Fig. 2. The same.

scesses showed so vigorous a growth of the bacillus coli communis that the growth of the actinomyces was obscured. The patient was now given iodide of potassium in increasing doses, *i. e.*, a saturated solution, commencing with three drops in a wineglassful of water before each meal, increasing three drops each day until sixty drops were reached and this dose continued.

May 1, 1901: Condition has improved some-

Fig. 3. The same. October 12, 1901.

what, although it was necessary on two occasions to open abscesses in the abdominal wall. Less numerous actinomycotic granules in discharge than before the administration of iodide of potassium was begun. Large tumor still in right

Fig. 4. The same.

lower quadrant of abdomen, extensive induration and infiltration of abdominal wall, and four fistulous openings.

June 15th: Patient's general condition not quite so satisfactory as at previous note. Three

discharging sinuses in abdominal wall, the discharge seropurulent, and containing a moderate amount of actinomycotic granules. Appetite good—no gastrointestinal symptoms. At patient's request he was discharged from the hospital and advised to continue the large doses of iodide of potassium.

June 29th: Patient re-admitted to hospital for further observation. General condition somewhat improved, but there are more discharging sinuses than at last note. Condition at this time indicated by accompanying photographs. (Figs. 1 and 2.)

August 20th: Patient returns feeling much better than when seen about three weeks ago. Condition of abdomen distinctly improved. Some of the sinuses closed, and the discharge from the remaining ones decidedly less. Patient says two weeks ago a small pimple or blackhead developed on right side of the nose, near inner angle of eye. This was squeezed by his wife, who had attended to the abdominal wounds. Forty-eight hours later patient noticed some pain and swelling about nose, which gradually increased, and a tumor the size of a hen's egg developed, which almost entirely closed the right eye. Hot applications were employed and about a week from onset tumor broke and discharged considerable pus. There still remains a tumor the size of a large pigeon's egg, the skin near and around presenting a livid appearance. Discharge seropurulent and containing a few typical actinomycotic granules. Potassium still continued.

September 20th: Patient returns feeling much improved. Abscess of nose entirely healed. Abdominal condition much improved. There are still a few actinomycotic granules in discharge from sinuses in abdominal wall.

October 12th: Patient shows still further improvement. Has been doing light work for several weeks past. Color good and general appearance excellent. Four or five discharging sinuses in abdominal wall, containing a small amount of discharge, with an occasional actinomycotic granule, mostly in an early stage of development. Condition of patient's abdomen at this time indicated in Figs. 3 and 4.

If this case is studied carefully it is very striking to observe the characteristic conditions that have been described by many authors, *i.e.*, the tumors to be felt in the peritoneal cavity and in the abdominal walls, the peculiar reddish-blue appearance of the surface of the abdomen, the multiple abscesses containing yellowish pus and granules. All of these conditions are indicative of actinomycosis; also the patient's improvement for a time after operative intervention and still further improvement when getting under the full effect of the iodide of potassium, the infection of the nose, and the rapid recovery, all aid in confirming the previous diagnosis.

The photographs illustrate very nicely the appearance of the patient when improvement had commenced, and still later on when in a condition of convalescence.

MEDICAL PROGRESS.

SURGERY.

The Treatment of Tuberculous Peritonitis.—With the facility with which surgeons enter the abdomen comes the question whether they have not overreached their abilities to do real good in some conditions. C. FENGER, in speaking of the operative treatment of tuberculosis of the peritoneum (Ann. of Surg., Dec., 1901), says that the difference between a laparotomy and a puncture, with regard to its effect on the exudate, is probably more apparent than real. From the nature of the disease it seems that the termination of its progress is the main factor in the improvement. It is immaterial, therefore, by what method evacuation is secured. The frightfully disappointing results of radical surgery in peritoneal tuberculosis, curetting, excision of tuberculous tumors in the omentum, the breaking up of adhesions and the removal of mesenteric glands must teach us that Nature cures tuberculosis of the peritoneum better than the surgeon, and it seems well established that, as Borchgrevink puts it, serous tuberculous peritonitis is a territory which surgeons must hand back to the internal medical clinic with thanks for the splendid opportunity which a misunderstanding gave to the profession by means of laparotomy to study tuberculosis in one of the large cavities of the body.

Peritoneal Tuberculosis.—The diagnosis of this disease differs in children and adults. The points to be remembered in children, says D. N. EISENDRATH (Ann. of Surg., Dec., 1901), are abdominal symptoms, namely, distention, pain, disturbed action of the bowels, presence of fluid and emaciation, with irregular fever. If the ascites is sacculated instead of diffuse, the diagnosis is still more easy. Cirrhosis of the liver is rare before nine years of age and occurs usually in syphilitics, with more or less jaundice. Irregular tumors may be present and chronic abscess opening at the navel is suspicious. Family history may aid. In adults, without an exudate, the diagnosis can even be made from the presence of a single or many irregular tumors of the omentum. Multiple carcinoma must not be forgotten and transverse tumor of the omentum must be distinguished from tumor of the stomach. Tumors posterior and lateral to the uterus with symptoms of slow inflammation always suggest tuberculosis by the rapid growth of the effusion; coincident pleurisy, greater degree of gastro-intestinal disturbance, irregular hardness along the edge of the tumor are distinguished from cysts of the ovary. With the cervix drawn and held, a bimanual examination through the rectum and the abdomen would distinguish a cystic tumor if connected with the cervix and an ovarian cyst by its pedicle. Occasionally tubercle bacilli appear in the curettings. When the ascites is free we distinguish it from that due to cirrhosis of the liver by the presence of alcoholism or the history of syphilis and by the character of the fluid withdrawn. Cirrhosis of the liver and tuberculosis of the peritoneum may occur in the same patient and then render diagnosis very difficult. Similarly, non-tuberculous and true tuberculous peritonitis are always impossible of certain distinction. When the family history is good and there are no signs of tuberculosis elsewhere, no tenderness or excessive amount of fluid, the chances are that the case is non-tuberculous.

Tuberculous Appendicitis.—This is a well-known though an uncommonly recognized form of appendicitis. E. W. ANDREWS (Ann. of Surg., Dec., 1901) considers that it must be distinguished from all th-

other forms of appendicitis, from exudate and residuum, from diseases of the adnexa, from intussusception, from actinomycosis, and from carcinoma and sarcoma. Of these but two among the various forms of appendicitis and malignant disease of the cecum are very common and no distinction can be drawn in many cases until the abdomen is opened. The treatment in important cases is in the nature of an emergency operation. Its phases are as follows: (1) Laparotomy for simple exposure, as in other forms of tuberculous peritonitis; (2) excision of masses in the omentum with breaking up of the adhesions; (3) artificial anus; (4) partial removal of the whole of the cecum or plastic operations thereon; (5) lateral anastomosis or partial exclusion; (6) resection of the cecum with end-to-end anastomosis or total exclusion. This last method has been repeatedly done and is certainly an ideal manner of dealing with tuberculous and cancerous tumors in or immediately about the cecum. The mortality is 16¼ per cent. for all of the aforementioned methods of operation.

Obturator Hernia.—The operative treatment of this rare form of hernia must be considered under two heads, which R. J. Gladstone (Ann. of Surg., Dec., 1901) calls the intra- and extra-abdominal methods. Exploration is practically the aim in all these cases. Some complications of the rupture may easily be reached without opening the abdomen, but probably the difficulties of the case will justify such a step. The external operation has the great disadvantage of a dangerous proximity to the large vessels of the lower extremities and furthermore a deep, narrow field. The intra-abdominal method, on the other hand, through a median incision low down, avoids all of these conditions and adds the advantage of making an artificial anus in the lower part of the wound in cases of strangulation. In the anatomy of this form of hernia it must be remembered that it never receives any covering from the pelvic fascia, because the proper line of attachment of the obturator portions of this fascia passes below the obturator canal, where it forms the lower boundary of this passage by blending with the upper border of the obdurator membrane. The second point of anatomy is that the obturator artery divides and the two branches of the obdurator vein unite immediately below the sac; hence, in cases of strangulation of the hernia, great care must be exercised in dividing the tissues. A single, free, downward and inward cut would almost certainly divide these vessels.

Duodenal Ulcer and Its Surgical Treatment.—The cardinal symptoms of duodenal ulcer are pain, hematemesis, melena. Its chief complications are profuse hemorrhage, perforation (acute, subacute or chronic), cicatricial contraction, and its sequelæ, periduodenitis, cancer. In 20 fatal cases 9 patients died of hemorrhage, 8 of perforation and 3 of cicatricial contraction of the duodenum or bile-duct. The symptoms of acute perforation, as described by B. G. A. Moynihan (The Lancet, Dec. 14, 1901), are sudden, overwhelming pain, rigidity and tenderness of the abdomen, profound collapse. After the first shock has passed, the symptoms and signs of gastric and duodenal perforation differ in their development. In gastric perforation the signs are those of general peritonitis; in duodenal perforation the course taken by the extravasated fluid leads to a more acute and an earlier involvement of the peritoneum on the right side and in the right iliac fossa. The clinical picture of appendicitis is copied with such accuracy that in 49 recorded cases tabulated by Moynihan, in 18 the first incision was made over the appendix after a diagnosis of acute appendicitis had been made. The medical treatment of duodenal ulcer should be carried out with the same care as in treating gastric ulcers. Surgical treatment may be called for (1) when an acute ulcer perforates; (2) when subacute or chronic perforation leads to periduodenal or subphrenic abscess; (3) in chronic ulcer when pain and gastrorrhagia or enterorrhagia are persistent and disabling; (4) when cicatricial contraction and induration or periduodenitis have caused narrowing of the caliber of the gut and dilatation of the stomach.

Extent of Permissible Resection of the Intestines.—How much and what portions of the intestine can be removed without endangering health and life? This question can be answered either by animal experimentation, by records of operated cases showing the later condition of the patient, or by experiments in metabolism in human subjects following intestinal resections. In endeavoring to answer the question A. Albu (Berl. klin. Woch., Dec. 16, 1901) calls attention to the more or less definite ratio between body-length and length of intestine. Beneke reckons 387.5 cm. of small intestine (omitting duodenum) for each 100 cm. of body-length. Estimating the length of the intestine in this wise (for the surgeon cannot measure the intestine even when it is exposed), Albu believes that to remove more than a third of the small intestine is to render impossible the proper nourishment of the patient.

Surgery of the Urinary Organs.—Eleven cases of nephrectomy for tumor in young children are discussed by T. R. Jessop (The Lancet, Dec. 14, 1901). Nine of these patients were operated upon by the lumbar route, which route the writer regards as applicable in all cases in which the tumor can be brought whole through the lumbar incision. While nine subjects recovered, the longest survivor lived scarcely two years and a half. In only three instances was there an opportunity to see the child near the end and in each of these there was undoubted evidence of recurrence. These results being neither better nor worse than those reported by other surgeons, Jessop is not disposed to recommend strongly the operation of nephrectomy in children suffering from malignant growths of the kidney. The difficulty lies in making an early diagnosis; the only prominent signs of the disease in young children are the presence of a tumor and the occurrence of hematuria. The latter sign unfortunately is not constant and when the former sign is present the disease is already far advanced. Nephrectomy in adults gives better results; in most cases the operation is performed for conditions other than malignancy, and even in malignant disease the degree of malignancy is less and the liability to diffusion and return is diminished. Jessop cites six cases of renal tumor in adults, with two recoveries and four deaths after operation. A typical case of recovery was that of a man, aged fifty-six, whose chief symptoms were frequent micturition, hematuria, and a dull aching pain in the left loin, this region being filled by a large growth; pallor and loss of strength were marked. Statistics which merely compare the percentage of recoveries in nephrectomy by the transperitoneal route with that of operations by the lumbar method are misleading; the least promising cases (those presenting the largest tumors) are the ones usually approached transperitoneally. It is, however, important to remember that in the transperitoneal route the peritoneum is twice incised, while in the alternative operation this membrane is not necessarily wounded at all; this consideration is of prime value in cases of suppuration, the lumbar route being imperative in such cases, as also in all cases which present no such difficulties as are due to the mobility of

the organ to be removed or to its extreme size. In performing nephrolithotomy in five cases by the method of Henry Morris, Jessop had no difficulty in controlling hemorrhage and no subsequent urinary fistula. In dealing with stone in the bladder the choice lies between litholapaxy and suprapubic lithotomy; in a perfectly-uncomplicated case the former is preferable as involving less mutilation and a briefer convalescence. But litholapaxy is negatived by advanced stricture of the urethra, advanced prostatic disease (here the suprapubic operation affords the additional advantage of dealing radically with the prostate), pronounced cystitis of long standing, encysted calculus, calculi too large to be crushed. Perineal lithotomy is considered by Jessop to be all but relegated to the past.

Surgery of the Mediastinum.—Operations about the large structures of the body, especially those of the chest, are rather new in the domain of surgery. The following conclusions are arrived at by Prof. ENDERLEN (Deut. Zeitschr. f. Chir., Nov., 1901). The position of the esophagus is highly variable even in the normal subject, with reference to the spinal column or leaves of the pleura, particularly on the right side, and to the aorta. The approach to the esophagus is most convenient on the left side if above the level of the bifurcation of the trachea, on the right side if at the level of the fifth or sixth thoracic vertebra, and again on the left side if from this point downward as far as the diaphragm. On the whole, the best form of incision is either a curved or a rectangular one with the base directed toward the spinal column. The application of operations on the posterior mediastinum is very limited and, with respect to the final safety of the patient, should be assigned particularly to foreign bodies which cannot be removed by any other and safer means, or which have certainly perforated the esophagus, and also to the cure of that rare form of diverticulum in the lower part of the esophagus, which usually defies all palliative treatment and cannot be induced to close by means of adhesions. As a primary aid to an operation upon the esophagus in this region gastrostomy must be done. Clean cut wounds of the esophagus can usually be sewed and heal promptly. Otherwise packing and secondary healing must be resorted to. Wounds of the pleura during operation must be closed first with packing while the operation is in progress and later can be sewn up. Further application of the operation of posterior mediastinotomy concerns abscesses which have their origin in the bones of the spinal column or ribs, or in the esophagus itself. Finally lung abscesses localized in this region may be approached through this channel.

X-Ray Burns.—With the value of the X-rays as a means of diagnosis there has been found the danger of causing certain forms of skin trouble after prolonged exposure. T. W. HUNTINGTON (Annals of Surgery, Dec., 1901) reviews this subject and states that the usual process is subacute or chronic necrobiosis. The cause of this death of skin-tissue depends upon an irritation of the peripheral sensory nerves, with a secondary paralysis of the vasomotor system of the affected area. Spasmodic contraction of the small blood-vessels follows. Nutrition of the cells is impaired and then their death becomes the logical result. A peculiar, progressive gangrene has been known to appear four weeks after exposure. It began in the center of the affected area and did not invade the outer limit until after four months. During this whole time there was persistent, though almost imperceptible, progression. It was found that the intima of the arterioles and veins, especially of the latter, was much thickened, and that the lumen of all was correspondingly narrowed. This, it is claimed, was due to a deposit of reticular masses of delicate fibrous tissue. Similar processes were noted also in the other coats of the blood-vessels. The deeper vessels continued to perform their function imperfectly and later indicated a degenerative process also. Authorities generally agree that medical treatment of these ulcers is not at all satisfactory and usually altogether useless. From the standpoint of surgeons it must be borne in mind that a slowly-progressive degenerative process is the essence of the disease, which both superficially and vertically is without definite limitations. Symptoms attributable to hyperesthesia of the affected area are of some value, but evidence referable to this source is unreliable, owing to tardy encroachment upon what had seemed previously to be healthy tissue. It follows therefore that if the ulcer is to be excised the operation be performed with extreme boldness to the end that all tissue supplied by defective blood-vessels may be removed.

Galvanocautery and Circumcision.—The various means of doing this small operation seem without end. S. LEDUC (La Sem. Méd., Dec. 4, 1901) brings out the method of using the galvanocautery instead of the knife. The steps of his operation are briefly as follows: Perfect anesthesia is first produced by a 1-per-cent. solution of cocaine. The prepuce is then seized in two clamps whose points approach each other at the root of the frenum in such a manner that each includes a triangle whose base takes in the lower third of the preputial orifice and whose apex corresponds with the root of the frenum. With the galvanocautery this tissue is then cut away. A dull red heat of the instrument is necessary. A third clamp is now placed so as to remove whatever more is necessary. If the temperature of the instrument has been correct the wound does not open and there is no bleeding. The operation can be done rapidly and very safely. The only dressing necessary after it is a covering of ointment with a low percentage of some antiseptic like salicylic acid or red precipitate in it. The patients as a rule can continue their vocation without interruption. The method has the advantage of uncovering the glans of the organ perfectly and also of giving the least possible deformity. Occasionally, if the temperature of the cautery has not been properly regulated, the lips of the wound will spread. Healing takes place by granulation and is usually slow, but even then the final result is good.

Hepatic Drainage.—Attention is called to the analogy between gall-bladder disease and appendicitis and the necessity for early diagnosis and treatment by J. B. DEAVER and E. K. MOORE (Phil. Med. Jour., Dec. 21, 1901). Gall-bladder disease is very protean in character, probably more so than appendicitis. Like the latter it is a progressive inflammation with successive periods of latency and of acute exacerbations which may at any time prove serious. Gall-stones play the same part as fecal concretions, causing ulceration and stricture of the ducts. The symptoms caused by catarrhal inflammations vary widely. When the swelling of the mucosa of the ducts is not sufficient seriously to impede the flow of bile, the only symptoms are a slight enlargement of the gall-bladder with a little local tenderness, a slight rise of temperature, some malaise and anorexia. Severe grades have more alarming symptoms of obstruction and colic. The diagnosis of pericholecystitis is more difficult and confusing. Adhesions to the duodenum may cause dilatation of the stomach, adhesions to the transverse colon or other parts of the intestine symptoms of intestinal indigestions, and adhesions to the stomach may closely simulate gastric ulcer. Probably many cases of chronic dyspepsia and intestinal indigestion are caused by the

adhesions of cholecystitis and appendicitis. In general it may be said that the symptoms of gall-stone disease are occasioned either by the pericholecystitis or by defective drainage. The symptoms of the former may be relieved by freeing the adhesions, but the prevention of their reappearance lies with their cause, the defective drainage of the gall-bladder and liver. In early cases before any anatomical changes have occurred, temporizing and the Carlsbad Sprudel treatment are indicated, but when adhesions and strictures are present waiting is dangerous. When during an operation a marked change is found to be present in the gall-bladder, its removal is indicated, for this insures freedom from the disease and adds little to the gravity of the operation. It has been proved that as an organ it has very little function in man. Fistulæ are done away with and the seat of the beginning of most cases of defective drainage is removed.

THERAPEUTICS.

Orthoform in Syphilis.—Orthoform has been known for some time as a local anesthetic. More lately it has been used for internal administration. A. Einhorn and R. Heinz, who discovered the product, have successfully given it for the pain of round ulcer and cancer of the stomach, admitting however that the drug does not act unless the continuity of the mucous membrane is broken, that is, unless it becomes a local anesthetic. BOUVEYRON and SIRAUD (La Sem. Méd., Dec. 4, 1901) have been administering orthoform in a total daily dose of two to three grams, divided into four to six powders, with success against the essential headache of syphilis. Most frequently, the smaller dose, namely, two grams in twenty-four hours, is sufficient to quiet all this rebellious pain. Usually a decrease takes place during the first night and after that the pain disappears entirely. In order to avoid recurrence it is necessary to continue the drug several days. The precise method of employing the drug necessitates a distinction between continuous and intermittent headaches. For the intermittent headaches the best method is to take a powder containing 0.50 gram of the drug about one hour before the expected time for the pain to appear and two similar powders during the latter part of the night. For the continuous pain, four such powders should be given at regular intervals; for example, every six hours. Sometimes the ingestion of this drug provokes a sensation of heat or irritation in the stomach, which may be corrected by giving an equal quantity of sodium bicarbonate with each administration. On the other hand orthoform does not quiet in any degree the dysphagia of syphilitics or other pains in the thorax, periosteum or vital organs.

Cocaine in Morphine-Poisoning.—A case which is interesting from several standpoints is reported by A. C. BARNES (Phil. Med. Jour., Dec. 21, 1901). A girl was employed in handling finely-powdered morphine sulphate. After a few hours the symptoms of typical morphine poisoning of a very severe type set in, with pronounced cerebral, respiratory, and cardiac depression. The usual restoratives were applied without much effect. Because its primary physiological activity is that of a descending stimulation, cocaine was then employed. One-half grain of the hydrochlorate was given hypodermically and repeated in half an hour. Although almost moribund, the patient ten minutes later showed signs of returning consciousness, with increased pulse and respiration. As this did not seem sufficient, another quarter of a grain was given. This, however, was followed by signs of cocaine poisoning which subsided in a few hours, but were succeeded by stupor with slow pulse and respiration. The latter condition was successfully combated with coffee, forced exercise, etc., and the patient made a complete recovery from the effects of the poisons. Care must be exercisd in giving the cocaine—half a grain at half-hour intervals until consciousness returns and the respiratory and cardiac functions are sufficiently aroused.

Urosin in Gout.—For all cases of acute gout, but also in the subacute and chronic forms and in arthritis deformans, J. HONIGSCHMIED (Wiener med. Blät., Dec. 19, 1901) has found in urosin, the quinic acid salt of lithium, a remedy which rapidly alleviates and in the majority of instances cures unless marked anatomical alterations exist in the joints. No bad after-effects were noted even after large doses. The usual administration consists in giving three pastiles during the acute stage, to be repeated in one hour if there is no relief. After this, about ten may be given daily for some time.

Administration of Phosphorus in Cod-liver Oil.—A great disadvantage in combining the peculiar action of phosphorus with those of the fatty oils, most particularly cod-liver oil, has been the slight stability of the solution. To render it more permanent K. DIETERICH (Therap. Monatshft., Dec., 1901) recommends using oils supersaturated with carbonic acid gas as solvent. A number of experiments showed that, if ordinary phosphuretted cod-liver oil is preserved for six months, it loses in strength up to 50 per cent.; with the oil saturated with gas the difference is so slight as to be unimportant, even if the bottles are kept without stoppers. Another advantage in the use of these oils lies in the fact that they do not readily take up oxygen and hence, by not becoming rancid, retain their pleasant taste.

Serumtherapy in Diphtheria.—Serumtherapy is not an old method of treating disease, therefore the question of its ultimate influence upon disease is still a somewhat unsettled question. D. DE MAURANS (La Sem. Méd., Dec. 11, 1901) gives an exhaustive review of serumtherapy in diphtheria, based upon statistics drawn from the reports of the Boards of Health in the chief cities in Europe from 1883 to 1900. He notes that prior to the first use of serum in 1895 the disease underwent periodical changes in virulence, so that the range in mortality in a given city was highly varied. During this period, for example, in Hamburg, in 1883, the reported deaths were 360; in 1887, 650; in 1891, 250; in 1894, 420; in 1895, 140; in 1896, 100. Independently, therefore, of the use of serum this one city indicates a wide variation in the death-rate. The last two years were, however, just after the new method was introduced. This same periodicity is present also in other infectious diseases. While he does not claim that serumtherapy is without effect upon the disease or that it is not the very best method of treatment which we possess, all factors considered, he does raise the question as to whether or not the vast improvement in the death-rate as given in the reports from 1895 up to the present may not be due to the fact that we have, during these years, been living in a time of moderate virulence of the disease. In support of this supposition he points out that in Paris from December 31, 1900, to November 30, 1901, a very rapidly-progressive increase in the death-rate had been present, from 300 to over 600. The question is certainly an interesting one, but the paper seems to lack a true scientific basis because it treats solely with the bare numbers of deaths reported, without any reference to the basis of the diagnosis, bacteriological or clinical, upon which the reports rested; to the presence or absence of mixed infection; to the seat of the disease, whether localized in a certain part of the throat or widely dissem-

inated through the upper air-passages; or to the causes of death, whether from the disease itself or from its complications or its sequelæ. Without due regard to some or all of these problems any such review will certainly lack the highest scientific grounds.

Treatment of Bright's Disease.—In discussing the treatment of this disease, J. W. BRANNAN (N. Y. Med. Jour., Jan. 4, 1901) enumerates in general terms the restriction of the proteid diet, the prohibition of strong alcoholic drinks, the free use of diluents, especially alkaline mineral waters, and the promotion of the action of the skin and bowels. The white meat of chicken and fish should be placed upon the same basis as the red meats, the only difference being the small amount of blood in the white meat. Von Noorden prescribes small quantities of both kinds of meat. Beef extracts are really worse than is the whole meat for they contain the irritating principles in a concentrated form. As causes of acute Bright's he refers to only two, scarlet fever and exposure to cold or wet, the former being the most frequent cause in children, the latter in adults He has noticed that acute nephritis seldom occurs in his Bellevue Hospital service, but in private practice exposure seems to be a rather common cause of this disease in adults. He alludes to the possibility that the hospital patients are more accustomed to exposures and hence less liable to sustain injurious effects from them

Erysipelas and Leprosy.—Observation of two cases of leprosy which were greatly improved after an attack of erysipelas leads A. PATRON (Gac. Med. d. Mexico, Dec. 15, 1910) to raise the question of immunity to a virus by inoculation with an attenuated form of the same virus, as in the treatment of diphtheria, or with that of another specific infection. The bacilli proteus vulgaris and prodigiosus, as well as the bacillus of Eberth, have created a state of resistance to Asiatic cholera. Cures through the influence of erysipelas upon other diseases have been noted by various observers, among whom may be mentioned Bazin, Kaposi and Wolkman, who reported improvement in lupus after the onset of erysipelas; Langenbuch cites a cure of multiple sarcoma of the skin by erysipelas migrans; Muir witnessed a rapid cure, through the influence of erysipelas, of articular tuberculosis of the arm of fourteen years' duration, in which bacteriological examination had shown Koch's bacillus in quantities. All other remedies had failed to influence the condition. The author asks the coöperation of bacteriologists generally in the study of erysipelas as a curative agent, especially in leprosy, which is on the increase in many parts of America, and for which there is no cure or remedy which will stay its progress. The query is put, "Can scientific inoculation of the streptococcus erysipelatis or its toxin be used in the treatment of this disease without injury to the patient?"

PEDIATRICS.

Hypodermoclysis in Pediatrics.—A large field for this method of treatment is still open in the field of children's diseases. W. C. HOLLOPETER (Phil. Med. Jour., Dec. 7, 1901) states that its usefulness is most marked in hemorrhages of the newly-born from genitals or umbilical cord, in purpura, in marasmus, in the toxemias associated with the acute eruptive fevers, in anuria due to uric-acid infarcts, in shock, in syphilis, and in tuberculosis. The technic is briefly as follows: A sterile normal salt solution is used which must be delivered to the tissue at 106° F. The gravity bottle or a large hypodermic needle is employed. The latter is preferable, especially in young children. The best site is over the great trochanter, although the inside of the thigh may be used. Sufficient anesthesia can be secured by a lump of ice or an ether spray. From one to two ounces of salt solution can be used at a time and from five to ten minutes should be consumed in the act of injecting it into the subcutaneous areolar tissue. In such cases in which the body is overwhelmed with fluids and toxins, as in acute nephritis, the hypodermoclysis should be preceded by a glycerin enema, which quite effectively drains the tissues, a more rapid entrance being thus provided for the subcutaneous injection.

Whooping-Cough.—This disease, so difficult of treatment, is the subject of a long article by E. WEILL and M. PÉHU (La Sem. Méd., Nov. 27, 1901). Their conclusions as to the management of whooping-cough, especially in children, are as follows: The essential is to arrest efficiently and conveniently by any means the symptoms of the disease. Such means must be easily applicable to the child. It must be remembered that the affection is cyclic and that the duration of the attacks of coughing is rather definite. The period of the disease in which treatment must be begun is all important, but unfortunately the record of the fact as to the period of beginning treatment fails in all statistics. Another point in which statistics are deficient is how often the disease attacks patients in a hospital compared to those in private practice. In hospitals apparently contagion often leads to bronchopneumonia and to tuberculosis. It seems, therefore, that on the whole the present method of making statistics of this disease does not rest on a firm foundation. As to the actual medication in whooping-cough, two distinct indications must be met, namely, to diminish the number of attacks and to prevent infection of the bronchi. It is necessary as far as possible to leave the digestion undisturbed and therefore all medicines which tend to derange it, as, for example, quinine, should be used as little as possible. Furthermore, all drugs which may develop poisonous effects should be discarded. Bromoform is a clear example. Antidiphtheritic serum must also be condemned on account of the unfavorable symptoms which it occasionally provokes. Lastly, the medicine used must not cause the child any irritation, anger or disturbance of the nervous system. Those procedures which may be in themselves rational, but which necessitate a good deal of machinery, are always difficult to carry out on account of frightening the child. Such are intralaryngeal instillations and the various local applications of antiseptics and sedatives to the throat. Inhalations of all kinds, however, are much better. The best of these is quinolein, a derivative from coal tar, in the form of the tartrate, up to the daily dose of 0.25 cg. to 1 gm. About 100 cubic centimeters of water are taken and from 10 to 20 drops of quinolein added to it for each child under treatment. The children of the household or institution are shut in a closed room three or four times a day, where during five minutes at a sitting they are subjected to steam laden with this drug. All of the above indications are met and difficulties surmounted by this method. On the other hand, it must not be assumed that this method is a true specific for whooping-cough, but it is a very convenient and efficacious remedy.

Tuberculous Peritonitis.—In a clinical lecture, A. CAILLÉ (Pediatrics, Dec. 15, 1901) presented a girl, four years old, who showed a large liver and spleen and an abdomen distended and tense and dull from the umbilicus downward. The urine obtained by catheter was free from albumin, sugar or bile. The percussion dulness does not change with the child's position, and the fluid is therefore contained in the interstices of the intestine matted together by adhesions. This and the

distention, pain, disturbed bowel action and loss of weight, with an irregular rise of temperature, point to tuberculous peritonitis. Non-tuberculous serous peritonitis usually has free fluid. Paroxysmal pain in the abdomen in children is also often due to worms, intestinal indigestion, membranous enteritis or chronic appendicitis. The author distinguishes four varieties of tuberculous peritonitis, viz.: (1) chronic miliary with ascites; (2) fibrocaseous; (3) fibro-adhesive; (4) tuberculous peritoneal tumors. Spontaneous cures have been reported and good results have often followed opening the abdomen when the infection is limited to the peritoneum. Medical treatment is extremely unsatisfactory.

THERAPEUTIC HINTS.

The Bath in Phthisis.—In this condition the patient cannot properly respond to pouring cold water over his skin or dipping him in a cold bath, so SIMON BARUCH (Post-Graduate, Nov., 1901) advises washing him with a bath-glove and gentle friction, a small portion of the body at a time. Take a basin of water at 90° F.; put the patient on one side of the bed; place a blanket and linen sheet under him, and, dipping the hand into the water, rub him on successive parts of the body. At each application reduce the temperature of the water, and, if the fever reaches 102° F. bathe every two or three hours. The parts below the knees and elbows should be skipped, as they do not react well. "Cold water is about the poorest antipyretic I know of," but it is used to stimulate and refresh the nervous system, and thus improve the patient's resisting power. For the hectic fever, tub-baths at 90° F., perhaps reduced gradually to 80° F., with friction, are of great benefit. A good and simple method of educating and disciplining the nerves and blood-vessels of the skin to bear colder and colder water and greater and greater force, with a fruitful reaction, is to throw forcefully six to twelve dipperfuls of water at 85° F. daily over different parts of the body. There is no danger of taking cold after these baths.

Diet in Tuberculosis.—A diet for tuberculosis is arranged by M. EINHORN (Post-Graduate, Nov., 1901) as follows: Breakfast at 7.30 a.m., two eggs, toasted bread and butter, coffee, with half milk, sugar and cream. A glass of milk or kumyss, bread and butter at 10 a.m. Lunch at 12.30, meat (steak, chicken) mashed or baked potatoes, white bread and butter, cup of coffee with milk and sugar. At 4 p.m. the same as at 10 a.m. Dinner at 7 p.m., meat-soup, with a little rice or farina in it, meat, mashed potatoes, rice or green peas, or any other light vegetable, bread and butter. Oysters, crackers and butter, a glassful of ale or stout at 10 p.m. The diet should be carried through whether there is appetite or not.

Early Care of Deaf and Dumb.—When the deafness is detected, generally by the child's failure to learn to talk, the parents should talk to the child the same as before. They should encourage the child to watch their lips and their gestures and have him, as he gets older, feel with the hand the current of air issuing from the mouth as they talk, and the coincident laryngeal vibrations. Common objects should have labels affixed to them in plain print. Later he should be shown the names alone, and asked to point out the objects. The deaf-mute should be taught to dress, wash and feed himself, should have toys, and behave the same as other children. But he has a tendency to irritability and loss of self-control. Music, the soft answer, the good-humored chaff are without effect upon him, and he is often made worse by ill-judged punishment.—W. B. DRUMMOND in Pediatrics, Dec. 15, 1901.

Treatment of Pulmonary Tuberculosis at Home.—The first order given by LEONARD WEBER (Post-Graduate, Nov., 1901) in early cases is to rest in bed till the temperature is practically normal. The bedroom is made to conform to those in a hospital by simple furniture, frequent ventilation, and plenty of light. The sputa are collected in spittoons containing a five-per-cent. solution of carbolic acid, or three-per-cent. formaldehyde, or in paper boxes which are burned. Food is given in small quantities and more often than usual. During acute fever the patient is sponged with alcohol and water three times daily, and, when improved, takes a cool sponge-bath every morning. Keeping down the high temperatures saves strength and body-weight, and to do this the author uses

℞ Acetanilid ..... 0.06 (gr. i)
Phenacetin ..... 0.2 (gr. iij)
Antipyrin ..... 0.2 (gr. iij)

Hemorrhage is treated by ice application to the chest in the form of two small ice-bags, one below each clavicle, dry-cupping and the internal administration of a teaspoonful of table-salt two or three times the first day, codeine, gm. 0.015 (gr. ¼), and from the second day fluid extract of arbor vitæ, c.c. 4.0 (ʒi), three times a day. The general irritability, harassing cough, etc., should be treated for a week or two as an acute bronchitis, a valuable remedy being

℞ Aq. chloroformi ..... 180.0 (ʒvi)
Sodii bicarb. ..... 4.0 (ʒi)
Morph. sulph. ..... 0.06 (gr. i)
Aq. lauro-cerasi. ..... 4.0 (ʒi)

M. Sig.: Four to eight cubic centimeters (ʒi-ij) in water every three hours. When this acute stage subsides, creosote treatment may be begun. The creosote capsules have not proved so good as has the solution in an equal volume of alcohol. The patient begins with ten drops of this in half a tumbler of milk or water three times daily, an hour and a half after eating, and doubles the dose each week up to sixty drops. Dry cough may be met by codeine sulphate, weakness by strychnine, weak hearts by cardiac tonics.

The Hemorrhagic Diathesis.—In presenting a child of a "hemophiliac" family, who had bled for five days from a wound of the mouth, and whose bleeding was checked by the actual cautery after stypticin, used locally and hypodermically, had failed, A. CAILLÉ (Pediatrics, Dec. 15, 1901) calls attention to the successful use of alum solution, 10-per-cent. antipyrin, or adrenal solution. Some surgeons give gm. 0.3-0.6 (gr. v-x) of chloride of calcium internally three times a day before operating on one with hemorrhagic tendencies; for instance, in gall-stones with cholemia. In the new-born, persistent hemorrhage from navel, stomach or intestine is met with. The navel can sometimes be effectively transfixed. The author has no knowledge of recoveries of newborn children after they have lost a pint of blood.

Ophthalmia Neonatorum.—To evert the lids and get eye-drops thoroughly in contact with the eye tissues is a difficult matter, which D. C. BRYANT (Western Med. Review, Oct. 15, 1901) prefers not to intrust to the mother. He does this himself, letting the parents wash out the eye several times a day with potassium cyanide solution, 1:8,000, and apply ice to reduce the swelling. He recommends the aseptic irrigator shaped like an ordinary gravy-dish, which is much used in England.

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THE CHARITIES OF THE STATE.

THE recommendations made by Governor Odell in his second annual message to the Legislature, concerning changes in the management of the State charitable institutions, strike one as being almost radical enough to be revolutionary. In the first place, the Governor recommends that the Boards of Managers of the State Hospitals for the Insane be abolished, and that these hospitals be placed wholly under the jurisdiction of the State Commission in Lunacy, located at the Capitol in Albany.

We are unable to believe that this proposition is a good one, for we fail to see what benefit could possibly come out of such a change. On the other hand, we feel that too much centralized power in Albany in charitable matters is a bad thing. There seems to be but one thing it would be helpful to, and that would be the injection of politics in the care of the insane. The Boards of Managers under whose supervision the institutions are now placed are appointed by the Governor, by and with the advice and consent of the Senate and serve for variable periods of time. There has been no occasion to feel that such appointments are now political in nature, for the very good reason that they carry with them no political prestige or power, and no pay. To abolish them and place the management of the institutions in the hands of a central board in Albany, which central board is subject to change at the pleasure of the Governor, would invite, if not force, the care of the State Asylum work into the hands of Albany henchmen.

The proposal to abolish the Boards of Managers of the other charitable institutions, including the reformatories, those for feeble-minded, the blind, the deaf, the dumb and epileptics, is, in our judgment, equally as wrong, and we hope the Legislature may see it so.

To run these institutions, that are now under the general supervision of the State Board of Charities, it is proposed to have a superintendent appointed from the members of the present State Board of Charities, "or otherwise," subject to the approval of the Governor, and who will work under rules and regulations made by the State Board of Charities, which rules and regulations shall also be subject to the approval of the Governor. One can see at a glance that the enactment of such a measure would at once place all the charitable institutions under the entire control of the Executive of the State, and so make it possible for them to undergo complete changes with every change of party. This would be dangerous; it smacks too much of practical politics; and any such proposition should be defeated.

New York State has built up a magnificent system of State charities, and it has taken a long time to do it. This system should not be ruthlessly torn down for the purpose of making fuel to help run the political machines. New York State is rich, its charity requirements great, and large sums are needed to care properly for her vast army of insane, feeble-minded, deaf, dumb and epileptics. If she is spending too much money, or not spending it in the right way, a halt should be called and due economy should be exercised; but do not let us sanction the conversion of this part of the State's work into a part of its political machine. New York City has been so long under the control of the Squire of Wantage as to make foreign control a stench in the nostrils of honor-abiding folk. The control of the State charities at Albany is a step in the wrong direction in that it totally subverts the now excellent plan of local supervision and control.

We shall watch with interest the progress that any bill introduced with the idea of carrying out the Governor's recommendations may make, and we urge physicians generally throughout the State to give the matter their earnest attention.

A PUBLIC HEALTH SERVICE.

In the issue of January 4th of the Medical News we referred to a bill "to increase the efficiency and to change the name of the Marine Hospital Service" which was read before the Senate of the United States, December 19, 1901.

This bill, the Perkins bill, gives the opportunity to establish a National Health Service that, for so many years, has been the dream of the sanitary wise, and we believe that it should be supported along its main lines, if not in all of its present details.

It is unquestionably very sound policy to use the well-equipped Marine Hospital Service as a basis of a National Health Service, rather than to organize a new health service that will either duplicate or render useless much of the work of the already established Marine Hospital Service.

It is to be borne in mind that the present name of the Marine Hospital Service is far from indicating the actual duties of this organization. It more closely fulfils at the present time the office of a public health service and it is not unreasonable that its scope should be widened in order to do so more efficiently. Its enforcement of quarantine regulations, domestic, insular and in foreign ports; its control and management of epidemics; its medical inspection of immigrants, its publication of sanitary reports and statistics relating to problems of public health, and the scientific investigations on medical subjects are all questions bearing most directly and largely on the welfare of the citizens of this country.

Organized, as is the Marine Hospital Service, on a strictly military basis, its discipline, efficiency and *esprit de corps* give the Service a firm foundation on which its accessory duties may be engrafted with benefit.

While it is undoubtedly true that there are a number of details which at the present time seem conflicting with the sovereignty of the State in the control of much of its own health affairs, we believe that once a service is established and the local conditions are appreciated such incongruities can and will be adjusted to the satisfaction of all State authorities.

To bring some order from the chaos of present conditions is desirable, even if such order is not of the most ideal form. What is needed is something to serve as a rational foundation for the establishment of our Public Health Service, and this, we believe, is better subserved by the bill under consideration than by any other which has yet been drafted.

ABSCESS OF THE LIVER.

It was the belief of the elder Flint that abscess of the liver frequently occurred as a complication of the forms of dysentery peculiar to tropical climates, but rarely complicated ulcerative diseases of the intestine in our own climate. This view of the frequency of hepatic abscess prevails to-day in the teaching of our medical schools. To maintain that it is erroneous would be to assume more than we are warranted in assuming at present; nevertheless, it is significant that in the service of a single hospital in New York City twelve cases of abscess of the liver have been surgically treated during the past six months, and we are disposed to raise the question whether the clinical importance of this condition is not generally underrated at the present day.

The subject is of more than theoretical pathological interest, for in the official report of the series of cases just referred to it will be shown that when reasonably early diagnosis is followed by prompt surgical intervention the prognosis is not as bad as might be supposed.

A previous history of intestinal disease cannot be obtained uniformly in cases of abscess of the liver; but, without relying too much on such a history, we may reasonably accept the suggestion of a hepatic focus which it offers in irregular fevers of obscure causation. In cases occurring in New York City a history of typhoid fever is not unusual.

Exploration by means of an aspirating needle is a simple procedure, involving so little risk that it should not be omitted when abscess of the liver is suspected. At best the clinical history of hepatic abscess is obscure; in advanced cases the physical signs are more reliable, but even in such cases a positive aspiration must be depended upon to give the final command for operation.

A febrile movement is the rule in these cases, but too much importance must not be attached to the lack of fever, especially if the period of observation be brief.

Tenderness over the hepatic region, associated with enlargement of the area of hepatic dulness, should arose suspicion. In deep-seated abscesses pain is not a prominent symptom; if perihepatitis ensue the importance of pain is enhanced. When a large abscess exists it is not unusual to notice dulness on percussion over the base of the lung while vesicular breathing is distinctly heard over the dull area, extending to the extreme base. In a routine examination it is customary to look for friction râles over the surface of the liver.

The discovery of such râles will aid not only in the diagnosis of abscess of the liver, but will indicate roughly to what extent adhesions have already formed between the liver and the abdominal wall.

A reconsideration of the subject of hepatic abscess by those who are preparing text-books of clinical medicine would be profitable.

ECHOES AND NEWS.

NEW YORK.

Practical Topics of Inebriety.—Dr. T. D. Crothers of Hartford, Conn., will deliver three lectures in the Hall of the New York School of Clinical Medicine, 328 West 42d Street, New York City, on the following topics: January 21st, "On Inebriety and its Pathology;" January 22d, "Treatment and Cure of Inebriety;" January 23d, "Questions of Responsibility in Inebriety." These lectures will be given in the evening at 8.15 o'clock. Physicians are most cordially invited to attend.

The Osteopathy Bill.—It is evident that the fight against the bill regulating and legalizing the practice of osteopathy in the State of New York, and fixing penalties for the violation thereof, will be fought with more zeal than ever. Senator James H. McCabe of Brooklyn, who is a physician and a member of the Kings County Medical Society, introduced a resolution asking for the discharge of the Committee on Judiciary from the consideration of this bill, and the reference of the measure to the Committee on Public Health.

Gift to the Post-Graduate Hospital.—At the annual reception of the Post-Graduate Hospital, held last week, Dr. D. B. St. John Roosa announced a conditional gift of $100,000 to be applied to the liquidation of the hospital's debt. Dr. Roosa said that the total debt of the hospital was a little under $400,000. The condition attached to the gift is that the remaining $300,000 is to be raised before the $100,000 becomes available.

The American Congress of Tuberculosis.—The Third Annual Session of this Congress is announced to be held on the 14th, 15th and 16th of May, 1902, in the City of New York, in joint session with the Medico-Legal Society.

Smallpox in New York City.—Dr. Lederle has appointed a number of extra vaccinators to cope with this disease, as the signs are that there will be a great increase in the number of cases during the winter.

Maternity Hospital Site.—The directors of the Manhattan Maternity Hospital and Dispensary have selected a plot of four lots, 327 to 333 East Sixtieth Street, between First and Second Avenues, as a site for the Maternity Hospital which is to be built by a wealthy philanthropist as a gift to the East Side poor. It is the intention to provide a hospital, a dispensary and a training school for nurses, housed in a building equipped with every modern appliance. The special features of the hospital will be a corps of doctors and nurses who will care for patients at their homes. The service will be free, although a limited number of beds will be reserved for patients who are not in need of charity.

Manhattan Dermatological Society.—A regular meeting was held on Friday, January 3, 1902, at the residence of the Chairman, Dr. Wm. T. Gottheil.

Dr. R. Abrahams showed a case of *angiosarcoma;* patient previously presented when some doubt was then expressed as to its malignant nature; microscopical sections since made show it to be true sarcoma. The mass occupied the prepatellar region and was about two inches wide by three long. Dr. Gottheil remarked that its tardy growth and the absence of considerable hardness speak against the diagnosis of sarcoma; the diagnosis cannot always be made with certainty without the aid of the microscope. Dr. Weiss accepts the microscopical diagnosis, though admitting the clinical picture was atypical. Dr. Franklin gave a differential diagnosis between granulation tissue and sarcoma as seen under the microscope. Dr. Abrahams further stated that removal of sections was attended by considerable bleeding and shrinkage of the tumor.

Dr. A. Bleiman presented a man of twenty-nine, who showed a macular eruption on chest and dorsum, also large hard papules on the face. The picture of secondary syphilis was considered typical, yet this man shows no initial lesion and denies infection. The diagnosis of *syphilis* was concurred in, Drs. L. Weiss and Gottheil stating that many such cases must be diagnosed irrespective of previous history.

Dr. R. Abrahams presented a man with *Raynaud's disease:* Six years ago there was involvement of the toes of right foot, followed by gangrene and subsequent amputation; later the big toe of the left foot became likewise involved, with loss of the member. At present the process shows itself in the right index finger; the finger is cold and anesthetic, and varies in color from red to blue or white; patient is highly neurotic; diabetes and syphilis were excluded. Dr. Sobel considers the case typical and regards the etiological factor as important. Dr. Bleiman remarked that the trend of opinion seemed to point to the blood-vessels as the primary lesion and reported a case recently observed in which both hands were involved. Dr. Dalton looks for atheromatous changes and regards the blood-vessels at fault. Dr. Pisko spoke in favor of the vasomotor theory.

Dr. Pisko presented a man of twenty-nine years, who gave the following history: Three years ago he complained of pruritis ani; two years ago there appeared on the scalp a hard papular eruption; eighteen months ago on the face and six months ago a red and itchy papular eruption of extensors of forearms. His wife aborted once; she had had five children, four of whom died within the first few months of life. Iodides and mercury did not influence the condition. Drs. Weiss and Sobel remarked that the history might lead on to a diagnosis of *syphilis,* yet they believed that it could be positively excluded. Drs. Weiss and Oberndorfer called attention to the exclusive involvement of the hair follicles and sebaceous glands; they would call it *folliculitis* and *acne;* this diagnosis was agreed upon by all present. Dr. Gottheil called attention to its unusual features. Dr. Bleiman considered it interesting, owing to its chronicity, and Dr. Abrahams called it folliculitis with an accompanying dermatitis. Dr. Pisko looked upon the lesion of the face and scalp as acne varioliformis; that of the hand as cutaneous gumma and that of the forearms as a lesion involving the sweat glands. For diagnostic purposes, sections will be examined and findings subsequently reported.

Dr. R. Abrahams showed a girl of sixteen with a nævus occupying the lumbar region; the mass became embedded in a cellulitis which was further complicated by a *herpes zoster.* The diagnosis of *nævus verrucosus* was concurred in, but Dr. Weiss doubted the coexistence of the zoster; Drs. Sobel and Pisko regard the vesicles as part of the cellulitis. Dr. Gottheil also accepts the latter view and stated that when first seen by him, some time ago, the appearance strongly suggested

zoster. Dr. Fraenkel spoke for removal and Dr. Kinch against such a procedure. Dr. Abrahams further stated that the vesicles followed the course of the nerve and this he deemed conclusive for *zoster*.

Dr. Gottheil presented photographs of a child who for four successive years in the autumn showed some bullous lesion of the leg and foot, situated upon a normal skin. The possibility of pemphigus and other bullous eruptions were discussed.

The following officers were elected for the ensuing year:

President, Wm. T. Gottheil; Vice-President, I. P. Oberndorfer; Secretary and Treasurer, A. Bleiman.

The Old Asylum on Blackwell's Island.—It is suggested that this building be given over to the housing of the tuberculous patients now in the City Hospital. It is now being remodeled and put in repair.

Bellevue Hospital Trustees.—The following names have been suggested as candidates for the seven members of the Board of Trustees of Bellevue and Allied Hospitals, under Section 692 of the Revised Charter: Dr. John Winters Brannan, James K. Paulding, Marcus Stine, Myles Tierney, Samuel Sachs, Howard Townsend, John J. Barry, Charles Macdonald, Felix M. Warburg, Theodore E. Tack, Winslow S. Pearce, Henry R. Ickelheimer, J. Hampden Robb, and Francis C. Huntington.

Infected Milk in New York.—The Commissioner of Agriculture, Charles A. Wieting, has discovered an infected herd of cows at a point about two and a half miles from Peekskill, and, as a result, two cows which have been proved to have tuberculosis have been killed, and the entire herd quarantined, in order to prevent the sale and distribution of infected cattle throughout the State. The milk and products of this dairy were shipped to New York City, and the conditions surrounding the case, the Commissioners said, call for stringent measures. State Veterinarian Kelly and an appraiser from the State Department visited the dairy recently and found it in a deplorable condition. It is owned by a New York City man who knows little of farming. He acquired it six months ago, and since that time about 50 of a herd of 108 cows have died.

Shall Physicians be Permitted to Dispense?—A bill has recently been introduced at Albany amending public health laws by excepting regularly licensed and practising physicians from the prohibitory clause which prevents them from conducting a drug-store, and directing the State Board of Pharmacy to issue a license to physicians who present proper proof that they are legally authorized to practise medicine.

Sanitary Superintendent at Jamaica, L. I.—Health Commissioner Lederle has appointed Dr. Samuel Hendrikson of 46 Bergen Avenue, Jamaica, assistant sanitary superintendent for the Borough of Queens, vice Obed Lusk. The salary is $3,500 a year. Dr. Hendrickson was graduated from the College of Physicians and Surgeons in 1875 and has been in practice at Jamaica for nineteen years.

PHILADELPHIA.

Award of the Gross Prize of $1,000 to Dr. Dawbarn.—The Philadelphia Academy of Surgery, as Trustees of the Samuel D. Gross Prize for Original Research in Surgery of one thousand dollars, have awarded this prize, after six years' interval, to Dr. Robert H. M. Dawbarn of New York. The treatise which won the competition was entitled "The Treatment of Certain Malignant Growths by Excision of both External Carotids." Upon this topic Dr. Dawbarn has worked, as opportunity served, for seven years past. The essay when published will contain the histories, with pathologists' report in each instance confirming diagnosis of malignancy and specifying its variety, of forty carotid extirpations by the author himself; and as many additional by about a dozen other surgeons. At least two of these are members of the Philadelphia Academy of Surgery. By the terms of Dr. Gross' bequest, the prize-essay must be published in book form, and a copy thereof deposited in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

Smallpox Again Increases.—The record for cases during the present outbreak was broken by the week ending January 11th, when 131 cases were reported The disease is believed to be stamped out at the Philadelphia Hospital and Almshouse, no new case having occurred for nearly two weeks. The inquest held by the Coroner January 11th, in the case of Joseph Goldie, aged eleven years, who was brought here from Bristol in the fall and died from tetanus following vaccination, showed that the real cause of death was "blood-poisoning and tetanus, following secondary infection after vaccination." Witnesses proved that the boy failed to take proper care of the wound after being vaccinated.

Obituary.—Dr. Charles Francis Carpenter died at West Chester, January 5th, in his seventy-sixth year, from influenza. In 1857 he went to Louisville, Ky., where he practised for forty years. During the Civil War he had charge of the Army Hospital at Louisville. Dr. Carpenter was an extensive traveler.

Dr. Alfred N. Mahon, son of Dr. J. B. Mahon of Pittston, died January 11th of nervous prostration following typhoid fever contracted in the Philippines while acting as surgeon on the transport "McClellan."

Annual Exhibition of Pathological Society.—The Philadelphia Pathological Society held its annual exhibition meeting January 9th. These meetings are made very interesting and instructive, members exhibiting gross specimens, microscopic sections, bacteriological findings, etc. As many as fifty microscopes with mounted preparations have been shown by one exhibitor.

Meschianza Too Costly.—The Meschianza held recently in the Academy of Music for the benefit of the McKinley Memorial Hospital Fund was not a success financially, there being a considerable deficit instead of a surplus. The committee made an unfortunate mistake in assuming more expense than it should have done and the fair was not patronized by physicians or the public. The *Press*, in commenting on the affair, says: "The mix-up over the Meschianza now being aired simply proves once more the folly of such elaborate fairs as money-raising projects. The contagious diseases hospital ought to be above such a means of raising the funds needed; in fact, is it not about time that the fair was passed by as an agency for securing funds? It is always a costly, wasteful, unscientific method."

Officers of Academy of Surgery.—The officers elected January 6th are as follows: President, Richard H. Harte; Vice-Presidents, Henry R. Wharton and John B. Deaver; Secretary, William J. Taylor; Treasurer, William G. Porter; Recorder, John H. Gibbon; Council, R. G. Le Conte and W. Joseph Hearn; Business Committee, J. H. Jopson and G. G. Davis.

Accident to Dr. Keen.—Word has been received that Dr. W. W. Keen, who is now in India on his trip around the world, has been unfortunate enough to fracture one of his clavicles, it is reported by falling from a horse. Dr. Keen had his right clavicle broken a number of years ago.

Obstetrical Society.—Dr. John M. Fisher was re-

cently elected president of this Society for the ensuing year.

Smallpox in Pennsylvania.—Dr. Lee, Secretary of the Board of Health of Pennsylvania, has informed the State Health Department that there is an outbreak of smallpox in the village of Shinglehouse, on the borderline between New York State and Pennsylvania. Every precaution will be taken to prevent a spread of the disease.

College of Physicians.—At the meeting of the Section on Medicine, held January 13th, Dr. D. J. M. Miller reported a case of pneumococcic arthritis occurring in a patient suffering from lobar pneumonia. Dr. J. M. Anders exhibited a postmortem specimen of aortic stenosis in which there was a saccular dilatation of the aorta beyond the stenosis at the valves; just beyond the dilatation was a narrowing. The strictly-localized area of atheroma was a point of interest. Dr. Anders stated that the diagnosis of aortic stenosis should never be made unless *all* the signs of that condition were present.

CHICAGO.

National Health Service.—The following resolutions were passed by the American Society of Naturalists and by the Council of the American Association for the Advancement of Science, at meetings held in Chicago during the last week in December, 1901: *Resolved*, That the Council of the American Association for the Advancement of Science approves of the efforts to strengthen the administration and work of the Marine Hospital Service by its establishment as a National Health Service, in the direction of promotion of the public health, the furtherance of scientific investigation relating thereto, and the securing of the cooperation of experts in hygiene and related subjects.

Pavilion for Tuberculous Patients.—At a regular meeting of the Chicago Medical Society, held January 8, 1902, the following resolution was presented by Dr. Frank Billings, seconded by Dr. J. B. Murphy, and unanimously adopted by the Society: *Resolved*, That the Chicago Medical Society petitions the Honorable Board of Commissioners of Cook County to erect a pavilion for tuberculous patients who are gravely ill in the city of Chicago, within practical distance of the center, so as to command the attendance of an efficient medical and surgical staff; and it further petitions that the modern plan of treatment of tuberculous patients who offer hope of recovery be instituted in small cottages located at some suitable place in Cook County. In a discussion on this resolution, Dr. J. B. Murphy said that it was a move in the right direction. Consumptive patients are being treated to-day on an entirely different basis from that of twenty years ago. Seventy-five per cent. of the cases to-day approximately are curable. Furthermore, it is an acute infectious disease, and requires the same guidance, care and treatment that typhoid fever does, and should be treated humanely on that basis. These patients should be housed in an accessible locality, where they can receive prompt and intelligent attention. He offered the suggestion that the pavilion be not attached to the Cook County Hospital. Dr. William Cuthbertson stated that recent investigations have shown clearly the inefficient food supply of patients at the Dunning institution. If this institution for the care of consumptives were removed from Dunning and placed anywhere within city limits, what guarantee would the people or the medical profession have that the patients would be treated any better in the city than at Dunning? He thought it would be better to treat the chronic consumptives at Dunning as they should be treated, and take the money that would be required to build a new institution within city limits and expend it at once in erecting cottages, such as Dr. Billings had suggested, for the treatment of curable consumptives. A large amount of money would be spent in the erection of this building, and he suggested that a competent medical staff be appointed who would be well remunerated for their services and who would be given charge of the chronic consumptives to be treated, and that the money required to build an institution in Chicago should be spent immediately on the erection of cottages.

As to Vaccination and Smallpox.—Dr. Reynolds has issued a supplement to "A Vaccination Creed" noted in last week's issue. It says that not one of the 346 cases of smallpox discovered in Chicago within the last three years was found vaccinated as defined in the "Vaccination Creed." Of the total number, 306 never had been vaccinated at all, though most of them claimed that they had. Examination of the arms proved that these attempts at vaccination were failures; there was no scar and the patients finally admitted that the vaccinations when performed did not "take." A "failure" is not a vaccination; therefore, these 306 cases had never been vaccinated. Of the remaining 40 cases, 26 had old, irregular and doubtful scars said to be the result of vaccination; but these were not characteristic; they were more like the scars from infected sores or wounds than those from vaccine. Nine had fair old scars of vaccinations made from 30 to 40 years previously. Only five had typical (characteristic) scars; but these also were the results of vaccination made many years before and never repeated. In no single case of the 346 had the terms of the First Article of the "Vaccination Creed" been complied with—vaccination had NOT been repeated until it would no longer "take." If it had been they could not have contracted smallpox. These 346 persons are examples of thousands of others who honestly believe they have been vaccinated, because they have had their arms scratched, something rubbed in and a more or less painful sore has resulted. There is no operation so simple and so safe as vaccination when properly performed and cared for. There is no operation in which such serious results follow carelessness and ignorance—even unto death itself, either as a direct result through poisoning of the vaccination sore or from smallpox through failure to secure a successful protective vaccination. It is to be understood that the vaccination herein referred to is that indicated in the Second Article of the "Vaccination Creed," to-wit, that made "on a clean arm with pure lymph and kept perfectly clean and unbroken afterwards." Each one of these points is essential to a protective vaccination and to freedom from serious soreness: The utmost attainable cleanliness; absolute purity of the vaccine lymph; an unbroken surface, by which latter all danger of contamination from external sources—the atmosphere, clothing, soiled hands, etc., is prevented. To be more specific on these points: The arm should be first thoroughly washed with soap and water and the site of the operation then wiped with alcohol. After the vaccine spot has dried, pin a clean soft handkerchief or piece of clean soft muslin to the shoulder-seam of the undershirt so as to hang in loose folds over the spot and prevent the sleeve from rubbing it. This must be changed for a clean one every day until the scab comes off and the surface is healed. The vesicle and resulting scab must not be broken or injured in any way and the arm and its coverings must be kept scrupulously clean from the time of the vaccination until it is well. Because experience has shown that cleanliness and the protection of the surface are best secured by the above method, the Health Department advises against the

use of "shields," bandages, plasters or other dressings; but if these are used—as they are by many physicans—they should only be applied as directed by the physician himself, and with the utmost regard to cleanliness.

Diagnosis of Pericarditis.—Dr. A. R. Edwards read a paper upon this subject before a recent meeting of the Chicago Medical Society. He said that the disappearance of a previously distinctly seen apex beat is very important. Ewart's first rib sign, the separation of the first rib from the clavicle, was described. The strength of the pulse is of value, a strong pulse with disappearance of the apex beat being of marked significance. Under percussion especial emphasis was placed upon the two complementary pericardial recesses of Forber; the first, triangular in form, with its apex directed downward, is found over the base of the heart, and the second in the fourth right intercostal space. Change of dulness observed in the erect posture is also noted in dilated hearts and in valvular heart disease, explained by Sahli by mechanical emptying of the auricles of their blood or by descent in this posture of the diaphragm. Change of the right border of the pericardial dulness in lying upon the right side is important, according to Rosenbach, since this does not occur physiologically. The characteristics of the friction murmur were discussed, especial weight being attached to its superficiality, lack of synchronism with the cardiac activity, its localization (cases being cited in which wide propagation over the whole chest was observed), and the influence of respiration. The friction murmur often persists despite large effusion, in which respect pericarditis stands in contrast to pleurisy. The great frequency with which pericarditis runs a latent course was discussed, as well as the causes of its latency, *e.g.*, severity of symptoms of the primary disease, as rheumatism or pneumonia, the frequently short life of the patient, as a rule, the occurrence of pericarditis as a secondary disease or a terminal affection, and the absence or equivocal significance of the symptoms of pericarditis as noted in the earlier descriptions of the disease. The etiological diagnosis is important, since pericarditis is almost invariably secondary to (1) acute infections; (2) extension by contiguity of inflammation in adjacent parts; (3) cachexiæ or dyscrasiæ. Differentiation was held to rest upon (*a*) the friction, and (*b*) the dulness. After discussion of differentiation from endocardial murmurs, the relation of pericarditis to valvular lesions, hidden by the exudate was considered of great importance and often to be suspected by the character of the pulse, etc. Under percussion, confusion with cardiac dilatation was considered too often inevitable, especially when dilatation of the heart coexisted with hydrops pericardii, hydrothorax, etc. Other evidences of stasis, as hydrothorax, usually antedate the hydrops pericardii. The clinical evolution, effects of digitalis and drastics, the iodide of potash, etc., are of differential value. Pulmonary retraction, mediastinal tumor, aneurism, marginal pulmonary infiltration, callous pleura, anterior mediastinitis, superabundant fat, etc., also received consideration.

CANADA.

Appointments.—Dr. E. P. Benoit has been appointed physician to the Montreal Jail. Dr. G. C. Ferrier, who was graduated from Queen's University two years ago, has been appointed a member of the Canadian Field Hospital for South Africa. Many medical students of the different colleges throughout Canada have also been appointed on this field hospital. Dr. A. T. Hobbs, formerly assistant surgeon at the Asylum for the Insane, London, Ontario, and who is chiefly known to the medical profession for his work while there in connection with gynecology among the female insane, has been appointed superintendent of the "Homewood Retreat," a private asylum at Guelph, Ontario.

Sir William Hingston's Professional Jubilee.—Sir William Hingston, the distinguished surgeon of Montreal, is celebrating his professional jubilee, and his friends and confrères have recently given testimony of their esteem by presenting him with a portrait in oils of himself. Sir William was graduated from McGill University in 1851 and from Edinburgh University in 1852. He organized the first board of health ever in existence in Canada, is a past-president of the Canadian Medical Association, an Honorary D.C.L. of Bishop's University, also LL.D. of Victoria University, Toronto, and a vice-president of the Montreal Branch of the St. John's Ambulance Association. He has also been the recipient of distinguished honor from the Supreme Pontiff, her late Majesty Queen Victoria, and also from the Dominion Government.

Consumption Sanitarium for Calgary.—The Government at Ottawa have received copies of a resolution recently unanimously passed by the City Council of Calgary, N.W.T., which protests against the increasing number of consumptives who are continually pouring into the western city in search of health and benefit from the fine climate. This resolution points out that nearly all of these persons come from the province of Ontario and other Provinces in the east, and therefore, calls upon the Dominion Government to erect a sanitarium in that locality or else contribute aid for the purpose. Should the Dominion authorities decide to comply with this request the Calgary Council will gladly co-operate.

A New Asylum in Ontario.—The old Victoria University buildings at Coburg, Ontario, have been converted into an Asylum for the Female Insane, and on January 4th was formally opened. It has accommodation at present for 150 patients, and the congestion in the other asylums of the Province will be relieved by transporting some of the patients thither. Dr. McNichol of Coburg has been appointed superintendent and he will have associated with him as assistant physician a female doctor, Dr. Cockburn of Toronto, this being the first instance of the appointment of a female doctor to the hospital service in Canada.

Notre Dame Hospital, Montreal.—The annual report of the Notre Dame Hospital, Montreal, shows that the past year has been one of excellent work. During that time there were 2,200 in-patients treated (177 more than the previous year), of whom 1,845 were cured, 155 reported as incurable and 134 died. In the surgical department there were 862 cases; gynecological, 250; ophthalmological, 180. The free medical advices numbered 20,078; in the pharmacy 24,246 prescriptions were filled. The financial report showed that the receipts had been $32,293.35 and the expenditure $29,480.54.

Ontario Medical Defence Association.—A deputation from this Association, composed of practitioners from different sections of the Province, waited on Premier Ross last week at Toronto. This Association desires to see the Medical Council, the governing body of the College of Physicians and Surgeons of Ontario, more representative and their mission on this occasion was to ascertain if the Government would introduce legislation at the present session of the Legislature to remedy so-called evils and thus do away with the appointed and homeopathic representatives, as they claim that the latter have altogether too much influence

in the affairs of the Council. The Premier promised consideration.

Laval University.—This institution will celebrate the fiftieth anniversary of its foundation on June 24th next.

Victorian Order of Nurses.—This order has received $23,000 toward the Cottage Hospitals Fund and of this sum $11,000 has already been disbursed.

GENERAL.

St. Louis Medical Society of Missouri.—This Society held its last regular meeting Saturday evening, January 11th. A paper on "Traumatic Rupture of the Intestines from External Violence" was read by Dr. A. H. Meisenbach.

Association of American Anatomists.—According to *Science*, the officers elected by the Association of American Anatomists are as follows: President, G. S. Huntington, New York; Vice-President, D. S. Lamb, Washington; Secretary and Treasurer, G. Carl Huber, Ann Arbor; new members of Executive Committee, C. A. Hamann, Cleveland, George A. Piersol, Philadelphia, and F. H. Gerrish, Portland, Me.

Infant Mortality in Russia.—The St. Petersburg correspondent of The (London) Times says alarming figures in regard to infant mortality are made public by the medical reports to local authorities. It appears that in many Governments 40 and even 50 or more per cent. of the children die in their first year. The mortality is attributed mainly to the ignorance of the peasants and to the fact that the mothers frequently neglect their children in order to work in the fields. Another cause is said to be the employment of wet nurses, necessitating the feeding of the nurses' children by artificial means. In one Government, where the mortality of infants among the Christians is 342.1 per thousand, the death-rate among the children of Mohammedan parents is 140.4 per thousand. The Mohammedan law compels mothers to nurse their own children.

Weird Causes for Suit.—The damage suit just decided by the Massachusetts Supreme Court against a woman who had brought action against the city of Boston on the ground that she contracted rheumatism as the result of climbing down into a catchbasin to rescue her child, who had fallen through and was drowning in the sewer, was somewhat of the nature of a suit which a Missouri woman is said to have once brought against a railroad. The Missouri woman was a passenger on the railroad and, having been accidentally carried beyond her destination some distance, the train stopped and she alighted. While returning she was chased by a bull, and her suit was based upon the claim that in outrunning the bull she impaired her health.

Fourth International Gynecological and Obstetrical Congress.—It is announced that this Congress will be held in Rome about September 15, 1902. The following names appear in the Italian Committee on Organization: Pasquali, President General; Mangiagolli and Morisani, Presidents; Pestalozzi, Secretary General; La Torre, Treasurer; Caruso and Regnoli, Secretaries; Truzzi, Calderini, Guzzoni, and Negri, Counselors.

Prof. Behring's Work.—News is received that Prof. Behring, at a Conference on Serumtherapy, reported successful results in his endeavors to render animals immune to tuberculosis through serum injections. The Noble prize awarded to him will be used for the pursuance of further research in the prevention of bovine tuberculosis.

Depopulation?—Statistics show a decrease in the birth-rate in Prussia of 5 per cent., England 10 per cent., France 14 per cent., and Belgium 15 per cent.

A Versatile Physician.—The following is an advertisement published in Shakespeare's time: "Wanted —for a family of invalids, a reliable and faithful man who is a competent physician, surgeon, and obstetrist; he must also take charge of the wine cellar and table service, and understand the carding of hemp, and construction of wigs. Every Sunday he will be expected to deliver a sermon, and, if necessary, conduct religious services. A liberal salary will be paid."

Smallpox in Hackettstown.—The smallpox situation is unchanged in this place. There are now forty-five cases reported. No new cases have occurred.

Sells M.D. Diplomas.—The Postmaster-General issued an order January 10th denying the use of the mails to the "Central University of Medicine and Science," and J. W. Norton Smith, President, 68 Montgomery Street, Jersey City. The university represented that it was an incorporated institution in good standing and that it had an extensive medical faculty. To those desiring to practise medicine the University of Medicine and Science sold diplomas at prices ranging from $5 to $20, according to the ability of the prospective M.D. to pay. The scheme is identical with that operated in Chicago by James Armstrong, under the title of the Metropolitan Medical College. Armstrong was tried before Judge Kohlsaat in the United States Circuit and sentenced to one year in jail. The Department of Justice will probably take action against J. W. Norton Smith, who is named in the fraud order as the promoter of the present scheme.

New Sydenham Society Publication.—Jonathan Hutchinson, F.R.S., General Secretary of the New Sydenham Society, has requested Messrs. P. Blakiston's Son & Co., of Philadelphia, the American agents of the Society, to announce the publication of "An Atlas of Clinical Medicine, Surgery and Pathology," selected and arranged with the design to afford, in as complete a manner as possible, aids to diagnosis in all departments of practice. It is proposed to complete the work in five years, in fasciculi form, eight to ten plates issued every three months in connection with the regular publications of the Society. The New Sydenham Society was established in 1858, with the object of publishing essays, monographs and translations of works which could not be otherwise issued. The list of publications numbers upward of 170 volumes of the greatest scientific value. An effort is now being made to increase the membership, in order to extend its work.

Obituary.—Dr. Joseph S. Carreau, who has been an active physician in New York City for the past thirty-eight years, died recently at his home in that city of heart disease. Dr. Carreau was born in Canada, and his work was principally among the French Canadians in New York. He was a graduate of Bellevue Medical College and a member of the New York County Medical Society.

Dr. Grove H. Wilson, former mayor of Meriden, Conn., died last week from enlargement of the heart. He was seventy-eight years old.

Dr. George Covert died at Clinton, Wis., last week, as a result of a cold. He was seventy-three years old, and had been president for several successive terms of both the National and the State Eclectic Medical associations.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, January 4, 1902.

THE KING AND THE CRUSADE AGAINST CONSUMPTION—A MAGNIFICENT DONATION FOR A ROYAL SANATORIUM—THE GIFT AND THE GIVER—THE INNER HISTORY OF THE AFFAIR—PRIZES OFFERED FOR INTERNATIONAL COMPETITION.

VESPASIAN, who, as historians tell us, died on a close stool, cynically described the situation in his last words, *Ut puto, deus fio.* We laugh at the Romans for deifying their emperors, but have we, the subjects of His Gracious Majesty Edward the Seventh, King of all the Britains and Emperor of India, any right to laugh at them? The Romans waited till their sovereigns were dead before they made gods of them; but we come very near to deification of ours while they are still alive. It is a fundamental principle of the British constitution that "the King can do no wrong;" but his lieges have stretched this principle into a dogma that whatever the King does must necessarily be, in the words of our most uninspired national anthem, "gracious and glorious." Hence the announcement made this week that King Edward is about to found a sanatorium for consumptives has been hailed by the newspapers with a chorus of adulation which recalls the groveling dedications of books to royal patrons of a bygone day. His Majesty's solicitude for the well-being of his people; his intelligent interest in medical science; the enthusiasm with which he has thrown himself into the crusade against consumption, are celebrated with a wealth of laudatory epithets and a tropical luxuriance of verbiage that would be exaggerated if applied to the active benevolence of a Titus or the constructive statesmanship of a Napoleon. If the King himself had given the money for the building and endowment of the sanatorium, the act would justify some part at least of the pæans that have been sung in his praise. But his share in the matter is simply that he acts as the almoner of one of his subjects who has placed a sum of one million dollars in his hands to be used for utilitarian or charitable purposes. This seems easy enough, but in reality it is a great deal in a country where royalty is worshipped with far greater devotion than is paid to the Almighty. The gold of the philanthropic millionaire is but common metal till it is touched by the royal fingers, when it becomes transmuted into something sacred and acquires thaumaturgic properties, in particular a singular power of attraction which ensures the success of the object for which it is given. The King's sanatorium is sure to be successful simply because His Majesty has deigned to allow his name to be associated therewith.

The history of the gift is interesting as affording a glimpse into the inwardness of our British life, which outwardly looks so stolidly respectable. The money has been given by Sir Ernest Cassel, a multimillionaire who has financed the Egyptian Government, and also, it is whispered, Edwardus Rex himself. The said Cassel is, like the late Baron Hirsch and other financial supporters of His Majesty, a Hebrew; his immediate origin, however, is not from Judea, but from Germany, his father having been something in the money-broking way at Cologne. Besides his vast pile of ducats Cassel, like his compatriot Shylock, has a daughter. The young lady fell ill not long ago, but fortunately physicians were not in vain. It would have been passing strange if they had, for they were Sir William Broadbent and Sir Felix Semon. Whether it was gratitude to either or both of these oracles of medicine, or the glitter of a prospective coronet at the "Coronation Honors," that moved the financier to lay his million of dollars at the royal feet, deponent knoweth not. But there is already a good deal of heart-burning on the subject, and there is going to be more. The money, it is said, was at first intended for the National Association for the Prevention of Consumption in which the King has from its foundation taken a keen interest, as he showed on the occasion of the Tuberculosis Congress held here under its auspices last summer. In some mysterious way, however, the donor was induced to offer his shekels directly to the King. Hence there is much gnashing of teeth among the leading spirits of the Association. It may be nothing more than a coincidence that Sir Felix Semon, who, like Sir Ernest Cassel, is a German Jew and is supposed to nourish a grievance against the organizers of the Congress for some alleged failure to recognize his high position in the medical hierarchy, has taken a prominent part in the matter. It is a fact, however, that the Advisory Committee chosen by the King to carry out the scheme consists, with one or two exceptions, of men who are known to be hostile to the movement against tuberculosis initiated by the National Association. The King is probably not aware of the use that is being made of him to gratify personal jealousies and avenge real or supposed injuries. But he will learn it before long and then there will be trouble. It is not surprising, therefore, that one of the most prominent members of the Advisory Committee is already anxious to be out of the business. And there is more behind.

When the rumors about the King's health were flying about, some of the Continental papers stated that a Dr. Besold, a German laryngologist, had been called to see His Majesty. It turns out that Dr. Besold, whose name is unknown to the medical profession of this country, is assistant medical superintendent of the sanatorium at Falkenstein. The King visited that place some years ago and was, as he stated publicly afterward, greatly impressed by what he saw. He visited it again a few months ago in company with one of his physicians, Sir Francis Laking, and doubtless on one or other or both of these occasions he made the acquaintance of Dr. Besold. Then an English "lady of quality" came on the scene. She was sent to Falkenstein and seems to have been fascinated by the German physician, whom she brought over to England to see the King, not to give counsel about the royal throat, but to discuss the matter of a sanatorium. It is said that it is the King's intention to appoint Dr. Besold head of the new foundation. Here again King Edward is being made use of to push the private ends of some intriguing individuals. The Advisory Committee which has been appointed consists of Sir William Broadbent, Sir R. Douglas Powell, Sir Francis Laking, Sir Felix Semon, Sir Hermann Weber and Dr. Theodore Williams. There are, therefore, two Germans on the Committee; if a German physician is placed at the head of the sanatorium, much dissatisfaction will certainly, and I think justly, be felt by the medical profession of Great Britain. Already the royal family largely patronizes German practitioners of one kind or another and recommends them to their friends. Such a recommendation is in this snobocratic country equivalent to a command; hence, native talent is ignored that the horn of the Germans may be exalted. On the whole the omens seem to point to a tremendous outbreak of squabbles and scandals as the result of what is ostensibly an act of pure philanthropy. It may turn out that the German financier has thrown a veritable apple of discord among the King and his medical counselors.

I should say that it will be a year or eighteen months before the scheme finds actual embodiment in bricks

and mortar. The Advisory Committee offer $4,000 in prizes for the best essays and plans for a model sanatorium and the competition is open to medical men of all nationalities. As the precise conditions of the competition may interest some of your readers, I give them in full:

1. Medical men of all nationalities may compete. The papers may either be the work of a medical man, or the joint production of a medical man and an architect.

2. The sanatorium is intended for 100 tuberculous patients, 50 male and 50 female.

3. Of the total number of beds, 88 will be assigned to the more necessitous classes, whilst 12 will be reserved for the well-to-do.

4. The accommodation for all patients is to be comfortable, a separate room being provided for each. Superior arrangements are to be made for the more wealthy patients.

5. It may be taken for granted that the sanatorium will be erected on an elevated and sloping site with a sunny exposure, and well sheltered from cold winds. It will have a farm at a convenient distance and be surrounded by extensive grounds, well wooded, and affording ample space for exercises of various kinds. The soil will be dry and permeable, and the water supply will be abundant.

6. The sanatorium must be fitted with all the latest sanitary arrangements and equipped with all requirements for scientific research. Provision should also be made for the recreation of the patients.

Economy in construction will be an important consideration, but it must not interfere with the reasonable comfort of the patients or the efficiency of the institution.

8. The essays must be in English and typewritten.

9. The essays must not bear the name or names of their authors, but should have a motto and each essay should be accompanied by a sealed envelope bearing the motto on the outside and containing the full name and address of the author or authors inside.

10. Three money prizes of £500, £200, and £100 respectively, will be awarded in order of merit on the recommendation of the Advisory Committee for the three best essays, provided they come up to the requisite standard of excellence. Brevity will be an important consideration, and a summary of the main features of the scheme should be appended to the paper. Unsuccessful papers will be returned to the author.

11. All essays and plans must be sent, postage paid, on or before April 15, 1902, to one of the Secretaries of the Committee: Dr. P. Horton Smith, 15 Upper Brook Street, London, W., or Dr. John Broadbent, 35 Seymour Street, London, W.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

CEREBRAL TUMOR—RESPIRATION AND HIGH ALTITUDES—WINE AND TUBERCULOSIS—PENETRATING WOUNDS OF THE SPINAL CANAL—SUTURE OF THE HEART—LEUCOPLASIA AND SYPHILIS—BRADYCARDIA IN DIPHTHERIA—MERCURIAL INJECTION—HEMORRHAGE AND THE CEPHALORACHIDIAN FLUID—GOITER IN CHILDREN—MOTOR APHASIA—RARE CYSTITIS—POTATOES AND DIABETES.

LUCAS-CHAMPIONNIÈRE, at the Academy of Medicine, December 3, 1901, continued the discussion of Jacksonian epilepsy with reference to cerebral localization. Tumors of the brain show symptoms which vary greatly and make it difficult to determine the time and point of surgical attack. As to the time of surgical intervention he disagreed with Raymond, who at the preceding meeting said that he thought that operation could usually be delayed until paralysis was definitely established. Lucas-Championnière claimed that a partial epilepsy and very acute symptoms justified an operation with the hope of removing the cause before it was too late and paralysis had become fixed. Jacksonian epilepsy itself may not always justify operation, but as a rule it furnishes indications for operation for the troubles which accompany epilepsy in the majority of cases.

ROBIN read in behalf of Binet, Dupasquier and himself the experiences which Dupasquier had undergone while making balloon ascensions. The most important facts noted were an increase in the number of pulsations of the heart and of respirations, whose frequency increased proportionately with the altitude, and a diminution in the capacity of the lungs which seemed to be in inverse ratio to the altitude. Furthermore, the gas excreted by the lungs decreased in the amount of carbonic oxide gas without direct reference to the altitude; as to the ventilation of the lungs he found an irregular progress compared with the altitude. The respiratory changes were also increased according to the quantity of oxygen absorbed by the tissues. These various modifications did not cease immediately upon return to earth. The author added that possibly many of these factors depend upon others, namely, the degree of cold and the age of the subject. Herein he disagrees with the observations of other authorities, Tissot and Hallion, who claim that the individual is sufficiently dominant for generalizing the whole results. It therefore appears that definite conclusions on this point cannot yet be arrived at.

ROOS, at the Academy of Sciences, November 25, 1901, stated that before concluding his researches into the question of the influence of wine upon healthy subjects he proceeded to verify by experiments the usual opinion to the effect that tuberculosis develops more rapidly in individuals who drink alcohol, especially if this is in the form of fermented liquors. For the purpose of proof he inoculated with tuberculosis six pairs of young guinea-pigs. Of these three were subjected to an ordinary diet, while the other three received during about one month and were still continuing to receive 35 cubic centimeters of wine a day for each kilogram of weight. At first the animals of the second group lost in weight considerably more than those of the first. None were adult animals and all continued to develop well. At the end of fifty days the weight curves of both lots of animals became parallel and almost the same. Later peculiar variations in weight appeared, first of the alcoholic and then of the non-alcoholic series of animals, first the one weighing more and then the other. Finally, the inoculation was done on the ninety-fourth day on the alcoholic animals and on the ninety-fifth day on the others; one guinea-pig of the first group was the last to die. His conclusion from his observations is that alcohol even in large doses does not have much influence on the experimental development of tuberculosis in the guinea-pig.

WALTHER, at the Surgical Society, November 27, 1901, reviewed the clinical facts concerning a case of penetrating wound of the spinal canal with complete division of the spinal cord. He operated on a woman last year for such a wound in the dorsal region caused by a revolver shot. The patient presented a paralysis complete in both lower extremities with the abolition of both reflexes, although right after the injury she was able to get up and take one or two steps, consequently the diagnosis was compression of the spinal cord by hemorrhages. Therefore on the fifth day, owing to the appearance of trophic troubles in the form of chipping of the nails and other trophic signs in the sacral region, it was decided to interfere. There was

also at the same time a penetrating wound of the chest which had caused a hemopneumothorax which had slowly begun to disappear owing to the trophic symptoms already enumerated. The diagnosis was changed to one of probable division of the spinal cord. Stereoscopic radiography showed that the bullet was situated in the spinal canal just beneath the right root of the vertebral arch in the second dorsal vertebra. Here the bullet was found at the operation without meeting anything but a little hemorrhage. The spinal cord was unfortunately cut entirely across and there was a space of half an inch between the two stumps. Nothing whatever could be done. The unfortunate woman died two and one-half months after the injury.

Fontan stated that he had had a successful case of suture of the heart for stab wound. The operation was done two hours after the injury and is the second of the kind which he has performed. He made a flap in the front of the chest, taking in the fourth, fifth and sixth costal cartilages beneath which he found a wound of the pericardium. This he enlarged enough to get a fair view of the heart which presented a cut in the ventricle about 15 mm. above the apex. This he proceded to suture with a Hagedorn needle and a medium-sized catgut. Complete arrest of the hemorrhage was obtained fifteen minutes after the operation. During the operation about one liter of salt solution was injected. After a period of disquiet the injured man began to pick up in a very satisfactory manner. Later, however, trouble in the lung began at the base, owing, perhaps, to a small embolus; on the sixth day symptoms of infection also developed on the left side in the chest and made it necessary to do a thoracotomy. Finally a phlebitis of the lower limb on the right side added still more to his complications. Nevertheless, the patient recovered.

Lancher, at the Medical Society of the Hospitals, reported in his name and in that of Lacapère an observation of a man, sixty years old, who during the course of a severe jaundice was overtaken by a right-sided hemiplegia involving the face and accompanied by hemichorea, hemi-anesthesia and contracture. Although the man denied ever having had syphillis, the presence on his tongue of two small areas of fibrous leucoplasia made the observers think that syphilis was at the bottom of the hemiplegia. They afterward gave him every day an injection of benzoate of mercury and prescribed iodide of potash. Four days afterward the paralysis had almost completely disappeared and there were left only a few choreiform movements and light exaggeration of the reflexes at the knee and a little hypo-esthesia on the right side. According to the author such spots within the mouth are always of syphilitic origin. Usually treatment with mercury is not effectual against them.

Bardier presented three cases of bradycardia, which he has observed in children recovering from diphtheria. In one case the pulse fell to 62; in another it remained for about fifteen days at 60. In none of the little patients in question was this phenomenon of the heart accompanied by signs of functional trouble. The only way of perceiving the condition was by a methodical daily examination of the pulse. All three left the hospital apparently cured. Although bradycardia is an abnormal phenomenon and an exception in the course of diphtheria, it possesses no great gravity, although many authors have stated that it always precedes a fatal issue.

Gaucher gives the following formula for an isotonic artificial serum for dissolving benzoate of mercury: Chloride of sodium, gram 0.75; benzoate of mercury, gram 1; sterilized water, grams 100. The injection must be made deeply into the cellular tissue in the buttock and not into the muscles. The dose may be 2 cubic centimeters and it is very well borne even without cocaine and occasions only a little pain; sometimes there is absolutely no pain.

Sicard, at the Society of Biology, November 30, 1901, read a paper on the chromo-diagnosis of the cephalorachidian fluid in cases of hemorrhage into the nervous system. During such hemorrhage, whether in the brain or the spinal cord, the cephalorachidian fluid withdrawn by lumbar puncture presents at times a yellowish or a greenish-yellow discoloration caused by a solution within it of the blood elements. In most of the cases there was not true hemoglobin present, but a special chromogen which had no influence on the solar spectrum at the level of the line made by hemoglobin and did not give the reaction by indirect oxidation by the tincture of guaiac and oxidized water. This special discoloration of the fluid may appear on the third day and remain perhaps for about eighteen days. Up to the present time no similar condition of the fluid has been found, excepting in severe cases of jaundice; therefore, with the exception of jaundice, the positive chromo-diagnosis constitutes a certain proof of hemorrhage somewhere within the nervous system or its immediate covering. If negative, of course, it does not disprove the presence of a hemorrhage. It is only when the fluid possesses this yellowish color and not a real blood color that one may think of an old hemorrhage.

Roy, at the Medical Society of the Hospitals, November 6, 1901, presented in the name of Variot a four-year-old child in which they had found the three chief symptoms of exophthalmic goiter, namely, the goiter, the exophthalmos and the tachycardia. The child was at once given thyroid extract; the pulse fell from 160 to 140, the anemia disappeared and there was an increase in weight of 3.50 kilograms. This seems to be the only published case of this disease in so young a subject.

Rathery and Chauffard exhibited the brain of a man who died a few days previous of apoplexy which followed a right hemiparesis with motor aphasia. The lesion was situated exactly at the base of the third convolution in the left frontal region. It consisted in a red softening due to the plugging up of the Sylvian artery. It was limited strictly to the cortical substance, which was proven by making numerous sections of the brain beneath this region.

Levi and Lemierre discussed the case of a man twenty-four years old who, during the course of a mild typhoid fever, showed symptoms of cystitis. A bacteriological examination showed in the urine numerous bacilli of Eberth, which continued to be present three months after the appearance of the cystitis. The fact that the urine of a typhoid-fever patient can contain this bacilli with or without the signs of cystitis is interesting in the point of view of prophylaxis of the disease. It makes it necessary, therefore, to destroy the urine of such patients as well as their feces in order to prevent the spread of their disease.

Mosse presented a contribution in which he reported a certain number of new observations tending to prove that, in the treatment of various kinds of diabetes and their complications, potatoes may with advantage be substituted entirely for bread. It must be remembered, however, that such treatment is equivalent to the alkaline treatment on account of the large quantity of potassium contained in this element. The best patients for whom to prescribe this class of diet is such as do not suffer from chronic nephritis, because potassium increases the toxicity of the blood.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 19, 1901.

The Vice-President, Hermann Knapp, M.D., in the Chair.

THE scientific proceedings of the evening consisted of a discussion on tuberculosis and the prevention of tuberculosis, with an introduction by Dr. E. G. Janeway. Dr. Janeway's remarks were founded on the papers read and their discussion at the British Congress on Tuberculosis last August, at which he was in attendance as a delegate from the United States. Dr. Janeway's report will appear in a subsequent issue of the MEDICAL NEWS.

The first paper in the discussion of Dr. Janeway's report was read by Dr. Theobald Smith. Its subject was "The Difference Between Bovine and Human Tuberculosis." This paper will also appear in a subsequent issue of the MEDICAL NEWS.

Danger from Bovine Tuberculosis.—Dr. Hermann M. Biggs in discussing Dr. Smith's paper said that Koch's declaration has made the subject of human and bovine tuberculosis and their relation to each other and to disease in man of intense present-day interest. Koch's position as announced at the Congress involves two considerations—first, he claims that bovine and human tuberculosis and the bacilli which cause them are different, which position is not proven, and, secondly, that the danger of infection of human beings by bovine tuberculosis may be ignored. There is no doubt that the main factor in the distribution of tuberculosis among human beings is human tuberculosis in those living near them. Health authorities realize how significant human contagion is because of the immense amount of tuberculosis which exists in tenement-house districts. As high as eighteen to twenty per cent. of the deaths among the population in certain parts of the city that are especially crowded are due to tuberculosis. In other parts of the city, where there are ample living space, light and air, the mortality is less than one-quarter of one per cent. The English statistics with regard to the origin of tuberculosis in human beings are very different from our own and also differ very strikingly from the Continental statistics. Sir Thorne Thorne, some two years ago in his lectures on the dangers of the spread of tuberculosis, collected statistics to show that ten per cent. of the deaths from tuberculosis in England take place from tabes mesenterica. He argues from this that the main source of infection is milk, though probably also meat infected with bovine tuberculosis has something to do with the spread of tuberculous disease, especially of the intestines. He pointed out, also, that while the general death-rate from tuberculosis was decreasing, the death-rate from the abdominal form of tuberculosis was on the increase.

American Statistics.—Our statistics differ very materially from those of England in this matter. Death from primary intestinal tuberculosis is very infrequent in this country and especially in this city, where proper examinations are made in order to determine the origin of the tuberculosis. The death-rate from tabes mesenterica is less than one per cent. Our statistics agree in this matter with those of Germany and of France. There is evidently some factor entering into the English statistics that makes them inapplicable to conditions in other countries. Our statistics for primary intestinal tuberculosis confirms Koch's position that the danger from bovine tubercle bacilli taken into the human system is so small that it can be practically ignored.

Limitation of Animal Tuberculosis.—The question of the limitation of tuberculosis in animals is then not a human, sanitary problem, but an agricultural problem. The prevention of bovine tuberculosis is of extreme economic importance, but it must not be urged upon the community on the ground of danger to human beings because of the possibility of infection.

Experiments Upon Human Beings.—The inoculation of human beings with bovine tuberculosis is out of the question. Certain experiments in this line have been done in the past however. Baumgarten reports that Rokitansky inoculated with tuberculous material certain persons, ten or twelve in number, who were suffering from cancer and were considered to be hopelessly ill. It had been observed that cancer patients did not suffer from tuberculosis, nor tuberculous patients from cancer. It was thought possible that the one disease might have some influence upon the other. Hence, the experiments were not entirely unjustified even from a humanitarian standpoint, as there seemed some faint hope of therapeutic benefit. The cancer patients were inoculated subcutaneously. Some local reaction took place, but no general infection occurred. At the autopsy no trace of tuberculosis could be found anywhere in the internal organs.

Human Susceptibility.—Dr. William H. Park said that, while it cannot be predicated of any specific animal infection that it will infect any other kind of animal, it is well known that when an infectious material proves pathogenic for a number of classes of animals very few animals are immune to it. Infections that are virulent for many animals are usually pathogenic also for man. There are many anomalies, however, in susceptibility. Rabies affects monkeys, but after it has passed through a series of monkeys the infectious material loses its virulence for dogs. On the other hand, rabbits are extremely susceptible to rabies, but any number of passages of the virus through rabbits does not diminish its virulence for dogs. Tuberculosis is a most insidious disease. It is practically impossible to tell the exact time of its origin in any given case. Hence, the difficulty of determining what is the exact cause of a tuberculous process in any given individual. In order to determine whether human tubercle bacilli would affect cattle, Dr. Park has had four suckling calves fed on sputum from tuberculous patients. Among them was distributed all the sputum collected daily from the tuberculous patients under treatment at St. Luke's Hospital. After three months the animals gave a reaction to tuberculin, though there was no reaction just after birth. When killed, however, no trace of tuberculosis could be found in their tissues. It is possible that more careful search might have shown a very limited area of tuberculosis somewhere in the tissues as the result of the presence of which the tuberculin test became positive. In this series of experiments there seemed very good reason to think that the animals should suffer from the disease if they were at all susceptible. They were kept in a rather cold, dark room and were evidently not up to the usual standard of health as a consequence. Some human tubercle bacilli were also subcutaneously injected. These produced local abscesses, but no generalization of the infection. It would seem clear then that human tubercle bacilli do not infect cattle when ingested or injected under ordinary conditions.

Danger of Bovine Tuberculosis.—It is well recognized now by bacteriologists that for susceptible animals bovine tuberculosis is much more virulent than human tuberculosis. It is possible that even, though human tuberculosis does not affect cattle, bovine tuberculosis may prove serious for human beings. This

would be especially true in young and delicate subjects and if, as is so often the case in infants, because of lack of variety in the diet, a considerable number of tubercle bacilli found their way into the intestines at one time the danger might be very great. It seems clear, therefore, that we must not lessen our precautions, though the question of the interchangeableness of human and bovine tuberculosis still remains open for discussion and is an extremely valuable field for study.

Human Tuberculosis from Cow's Milk.—Dr. Abraham Jacobi quoted a number of articles that have recently appeared in English and German medical journals with regard to the question of the possible origination of tuberculosis in human beings from cow's milk. Practically all writers are agreed that certain cases of human tuberculosis are etiologically connected with tuberculous cow's milk. There are many series of cases in infants reported in which this connection seems beyond doubt. This does not prove that the tuberculosis in infants originates frequently from cow's milk, but it does demonstrate that there is a certain amount of danger. Dr. Jacobi himself has reported a case of ascites in which tubercle bacilli were demonstrated, though no tuberculous lesions could be found in any other part of the body. Other such cases have also been reported. It is probable that in these cases the only explanation that can be accepted is that tubercle bacilli have come from the intestines. This does not necessarily infer that there are visible lesions of tuberculosis in the intestines. Tubercle bacilli and other micro-organisms may penetrate what to all intents and purposes so far as ordinary examination is concerned, is an unbroken mucous membrane. In Dr. Jacobi's case no tubercle bacilli could be found in the blood and there were no signs of miliary tuberculosis or of pulmonary tuberculosis, so that the bacilli surely came from the intestines. The intestine of young children is particularly predisposed to let bacilli pass. Hence, the frequency with which primary tuberculosis of the peritoneum occurs. As a matter of fact, peritoneal tuberculosis is nearly always isolated and tubercle bacilli are often able to find their way into the free abdominal cavity. In peritoneal tuberculosis the mesenteric glands are not always, nor necessarily, enlarged. In a word, tubercle bacilli succeed in finding their way to the peritoneal surface without the production of visible lesions along the paths through which they have come from the intestine. Dr. Jacobi believes that the danger of contracting tuberculosis through the intestine is underestimated and is liable to be more so, because of Koch's declaration and its effect upon the public mind. Intestinal tuberculosis is rare, but even these rare cases should be prevented. Generalized tuberculosis when the peritoneum is also involved usually originates in the peritoneal cavity. The infection practically always comes from the intestine. No matter how few the cases, then, it would be difficult to overestimate the danger of intestinal tuberculosis.

Not Agricultural but Hygienic Problem.—Dr. Jacobi thinks therefore that we can not have laws too strict for the regulation of the milk supply, so as to avoid the danger from tuberculous milk that certainly exists. The care of the dairy and the guardianship of bovine tuberculosis is not an agricultural, but a great hygienic problem. Time and money devoted to it are not in the interest of the farmers of the country and the dairymen, but of the human population and its health and especially the health of its infantile members.

Rarity of Intestinal Tuberculosis.—Dr. W. H. Northrup said that he has never seen a case where clinically he believed in the existence of a primary mesenteric tuberculosis. He has made autopsies on 125 cases of infants who had died from tuberculosis under the care of the New York Foundling Asylum. These children had been distributed among families who would care for them and were, as a rule, fed on grocery milk. Every opportunity was presented then for the contraction of intestinal tuberculosis, but in only three cases did there seem to be primary intestinal tuberculosis. In 34 cases of general tuberculosis there was also peritoneal tuberculosis. In 13 cases the only parts affected were the bronchial lymph-nodes. Dr. Northrup said that in his experience peritoneal tuberculosis was not always, nor even usually, due to primary infection. On the contrary, as a rule the infection of the peritoneum seems to come after many other organs and tissues have been infected. In most cases, then, tuberculosis of the peritoneum appears to be the result of overflow of the tubercle bacilli from the system at a time when they exist so freely in the body that generalized infections have become possible.

Minimal Danger from Bovine Tuberculosis.—Dr. David Bovaird confirmed Dr. Northrup's statistics by a like series of his own in which only two cases of primary intestinal tuberculosis were noted. Recently Drs. Pearson and Ravenel in the Pennsylvania State Reports announced that in fifteen herds they found eighty per cent. of the cattle tuberculous. The milk from these herds had been very generally used in the neighborhood for the feeding of children. There was, however, no special incidence of intestinal tuberculosis in the vicinity thus supplied with milk nor any notable increase of the usual mortality from tuberculosis among infants. If there was much danger from the taking of tuberculous milk there should surely be convincing proof of it at hand by this time. As there is no absolute evidence, it would seem that there is but little danger from milk.

NORTH BRANCH OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held December 20, 1901.

H. Booker Mills, M.D., in the Chair.

The Differential Diagnosis of Variola, Varioloid and Vericella.—Jay F. Schamberg read this paper. He first called attention to the liability of error in the diagnosis of smallpox, which he classified under two heads, (1) the overlooking of the true nature of the disease and diagnosing it as something else, and (2) the mistaking of some other disease, such as chickenpox or measles, for smallpox. The period of incubation in smallpox is about twelve days, the pyrexia begins at this time and the eruption usually appears about a couple of days later. During the latter days of the period of incubation the patient usually suffers from malaise, general lassitude, loss of appetite and chilliness. These symptoms vary in intensity and are sometimes very marked toward the end of the second week of incubation. Smallpox usually begins with a chill of varying severity and is often associated with headache and frequently with backache. Attention was called to the fact that too much stress should not be placed on the latter symptom, as various other causes may produce it, and this is one of the most common errors. Among other symptoms sometimes present may be mentioned vomiting, fever, prostration, pain in the pit of the stomach, nausea without vomiting, vertigo, especially in the mild cases, and general soreness, both muscular and cutaneous, the latter symptom often causing the mistake of diagnosing a case of influenza as smallpox. The patient's temperature may rise as

high as 105° F. and may be accompanied by delirium, coma or convulsions, the two latter symptoms being more frequent in children. Sometimes the patient does not experience any initial symptoms. In 100 cases which recently came under the author's observation he found that headache was present in 86 cases; chills in 78; backache in 70; vomiting in 58; nausea without vomiting in 10. In only 2 of these cases were initial symptoms absent, although the cases included all forms of smallpox from the mildest to the most severe. The vaccine roseola which occurs eight or ten days after vaccination resembles very much the rubeola rash. Chicken-pox, which is probably more often mistaken for smallpox than any other disease, has the following distinguishing features: The eruption occurs chiefly on the covered surfaces, particularly the back. The papilla may vary in size, and some often appear several days after the first have been observed, while eruption in smallpox occurs chiefly on the exposed surfaces of the body, is of uniform size and comes out almost all at one time. The character of the lesions in the two diseases is also very different, the smallpox lesion being a firm, shotty papilla developing into a vesicle. Another important factor in the differential diagnosis of these diseases is whether or not the patient has been recently vaccinated, for, if a good vaccination scar is present, one can more safely exclude the possibility of smallpox. One of the most difficult diseases to distinguish from smallpox is pustule syphiderm, and many instances are recorded where one has been mistaken for the other, the most important feature in the differentiation being the previous clinical history of the patient.

Vaccine Virus, Its Preparation and the Accidents Following Its Use.—This was the title of a paper read by Dr. Joseph McFarland. Reference was made to the early history of vaccinia or cowpox and attention directed to the fact that the exact relationship which this disease bears to smallpox has never been clearly ascertained, although it has been observed that it was most prevalent among cattle when smallpox was at its worst among the human race. The characteristic features of vaccinia are marked constitutional symptoms and a rash limited to certain parts of the cow's body. The author referred to the difficulty that has always been experienced in transmitting any disease from man to cattle and cited in support of this theory the fact that, although syphilis and gonorrhea are everywhere recognized to be produced by micro-organisms, yet it is impossible to transmit these diseases to the lower animals. This difficulty in the transmission of disease from man to the lower animals, he thinks is due to the difference in the soil in which the germ is implanted and the difference between variola or smallpox in man and vaccinia or cowpox can no doubt also be explained on this basis, as but few of the attempts to transmit human smallpox to cattle by inoculation have proven successful. Reference was made to inoculation as the method in use for the protection of man from smallpox prior to the introduction of vaccination by Jenner, and the drawbacks of this mode of immunization were commented upon, prominent among them being the facts that the operation must always be performed when the patient was in the very best of health and even then a condition very similar to a slight attack of the disease itself was frequently experienced. The various advances in vaccination from the introduction of the original method up to the present time were noted and the advantages and disadvantages of vaccination with bovine virus over vaccination with human virus were discussed. Prominent among the former is the rarity of the occasions in which any micro-organism from the lower animals will develop in the human system, the chief objections being the liablity of the transmission of tuberculosis, which, however, the author considered as of but little import, owing to the fact that extreme care is used in the selection of the animals for this purpose and, as is sometimes claimed, the immunity following vaccination with human virus is considerably longer.

Classes of Micro-Organisms Found.—In the opinion of the author it is impossible to eliminate the micro-organisms from the virus; he considers that there are three kinds which are always present, namely, (1) the unknown specific micro-organism of vaccinia, (2) the micro-organisms from the skins of the animals, and (3) the micro-organisms that get into the virus accidentally from the air, instruments, hands, etc., during its preparation. By the use of glycerin in the preparation of the glycerinized virus no doubt many of the micro-organisms of the two latter classes are destroyed, as they seem to be more susceptible to this germicidal agent than the micro-organisms of vaccinia. Owing to this fact the author feels that the glycerinized virus is to be preferred to the dry points which are also used to a considerable extent by many physicians.

Study of Vaccination Scars.—Dr. William Welch read a paper entitled Deductions from Studies of Recent Vaccinations; Interpretation of Old Scars; Complications of Vaccination. In order to give some idea of the value of vaccination the author commented upon the fact that of the eight hundred people admitted to the Municipal Hospital in Philadelphia during the present epidemic of smallpox not a single case had recently been successfully vaccinated. Numerous instances have been observed where whole families have been taken to the Hospital, one of them suffering from this disease, and, although they had all been continuously exposed to smallpox for several weeks, those members who had recently been successfully vaccinated remained entirely immune. Instances have also come under his observation where vaccinated infants have taken their daily nourishment from the breast of their mother suffering from varioloid and have remained entirely free from smallpox. A number of similar instances were cited and attention was directed to the fact that where the proper precautionary measures of vaccination prior to taking up their duty in the smallpox wards has been observed, the author in his thirty years' connection with this Hospital has never seen a resident physician or nurse contract the disease.

The Technic, Value and Object of Vaccination.—This was the title of a paper read by Dr. Judson Daland, in which he emphasized the importance of proper cleansing of the skin prior to the operation. If the patient be a female he advises that it be done upon the antero-external aspect of the lower fifth of the thigh, and in a male it should be performed upon the antero-internal portion of the middle third of the left arm, provided he is right-handed. Not only should the skin be thoroughly cleansed, but it should be rendered aseptic by the free application of alcohol followed by ether. The author recommends the use of a sterilized steel five-pointed scarificator, which should be drawn parallel with tne long axis of the limb and the scratching continued until there appears over a surface about a quarter of an inch in diameter a moisture composed of serum slightly blood-tinged, after which the scarificator should be moved at right angles until the wound presents a uniform pink appearance due to slight exudate of blood-stained serum. After this the virus should be applied and brought into thorough contact with the abraided surface by means of the scarificator, and an ordinary shield applied which the patient should be instructed to remove in twelve hours, when under ordinary circumstances a sufficient scab will have

formed to prevent re-infection of the wound from the skin or outside. The wound should be further protected by a simple surgical dressing, which should be removed, the wound cleansed and a fresh dressing applied nightly. As soon as the first evidence of inflammation shows itself, the physician should carefully cleanse the point of vaccination and surrounding skin with abundance of sterile hot water and white Castile soap, and, after thorough drying with alcohol, care being taken not to disturb the scab, the surrounding skin should be rubbed with simple oxide of zinc ointment, or, better still, with an ointment composed of five grains of boric acid to the dram of lanolin and almond oil. A surgical dressing composed of a thin piece of lint covered with this ointment should be placed over the pustule, over which should be placed a thin layer of borated absorbent cotton, the whole being held in place by a rubber bandage. This local treatment should be repeated once, twice or thrice daily, depending upon the amount of suppuration. Attention was directed to the value of vaccination as an immunizing agent and various statistics tending to prove this were quoted, notable among which were the observations made by Dr. Koch during an epidemic of the disease in Germany, which showed the mortality-rate among the unvaccinated to be 32 per cent. while among those who had availed themselves of this protection it was only 9.5 per cent.

Tetanus Following Vaccination.—Dr. William L. Kelchner of Camden, N. J., read a paper in which he gave a full account of this condition in cases which had recently come under his observation. There was but a very short period of incubation, and the author inclined to look upon the virus used as the source of the infection. Tetanus antitoxin was administered in the early stages of the disease, and it is to the prompt employment of this remedy that the author attributes the recovery of the patients. Strychnine was also given hypodermically in large doses. In his opinion the antitoxin to be of value must be administered promptly. The author feels that with care in the preparation of the patient, as outlined by Dr. Daland, tetanus would be avoided.

Dr. William F. Elgin, who has had large experience in the preparation of vaccine virus, opened the discussion and his remarks were particularly directed toward this subject. He commented on the fact that because a person will take vaccination it does not always follow that they will take smallpox, if exposed to the disease, citing in support of this theory that he has had under his observation for the past two years from two to three hundred young people employed in the manufacture of virus and has observed that when any one who has not been successfully vaccinated since childhood comes to work in the laboratory they immediately vaccinate themselves in any abrasion that may occur on the fingers, on the hands or even on the face, which is frequently followed by a revaccination in the same manner two or three weeks later, and he has observed instances where the same person would within twelve months vaccinate themselves in the same manner for the third time. In order to secure protection against vaccination he believes that it is necessary to vaccinate to the point of saturation, which he thinks is rarely reached by the methods practised in this country. Regarding the comparative values of human virus and bovine virus for vaccination, he remarked the fact that Mexico, where the use of human virus predominates and where it is claimed that the immunity lasts from thirty to forty years, is one of the most poorly-vaccinated countries in the world, and that in England, where this method is pursued at the present time, they are having the same trouble with smallpox following vaccination as was experienced in this country some years ago.

Selection of Animals.—Mention was made of the careful selection of animals used in the preparation of this virus in order to exclude the possibility of transmission of infectious diseases and especially tuberculosis, and the technic of the inoculation of these animals was given in detail. Especial stress was laid upon the importance of avoiding drawing blood in vaccination. Many of the complications of vaccination are due to the micro-organisms on the surface being carried into the subcutaneous layers of the skin, thus producing pathogenic conditions. The glycerinized virus he considers far superior to the dry points, as he has observed several cases in calves vaccinated with the dry points where the odor of the animal became very offensive and amount of discharge from the wound very great in three or four days after the operation, while no such conditions have been noted where the glycerinized virus was used.

Dr. R. N. Wilson referred to two cases of tetanus following vaccination which had recently come under his notice, both of which resulted fatally, one in thirty hours and the other in six days after the development of this condition. Both of these cases had passed through a long incubation period and both were treated with antitoxin, which was administered as soon as the symptoms developed. Both were the children of stablemen and both families lived in close proximity to the stables, one of the children sleeping with its father, who was a coachman. The children were vaccinated in the most aseptic manner. As regards the source of infection, the speaker considered it due to outside infection, particularly as this same virus had been used in vaccinating about 560 students at the University of Pennsylvania and not a single case of tetanus has occurred among this number. As a curative agent he is inclined to place but little value upon the tetanus antitoxin, believing that its greatest use is in producing immunity from the disease, in which capacity he considers it invaluable.

Shields.—Dr. C. P. Franklin considers that many of the complications following vaccination are due to shields, and he is at present following out an original idea of always putting on the vaccination as soon as the virus is placed thereon, a little piece, say ⅜ of an inch square, of silk plaster, asepticized and prepared as would regularly be done for other surgical uses. He then puts on a dome-shaped aluminum shield which is also an original idea, the dome being formed by two ribs of the metal. This serves to protect the arm from the heavy winter underclothing and from inadvertent scratching. He has been using this method for some time and has since had no cases of tetanus and very few cases of inflammatory conditions of the arm.

Dr. Hugh Hanna made a few remarks on the subject of tetanus, bearing particularly upon a case of this condition following vaccination which had recently come under his observation. This case occurred in a child and the symptoms developed sixteen or eighteen days after the vaccination. The sanitary conditions were far from ideal, as the house was directly connected with a stable, the door from the dining-room opening into the stable, and the speaker was of the opinion that this, together with the fact that the people were not very careful in their habits, is quite likely to be responsible for the infection. The child was vaccinated on the left thigh. All the typical symptoms of this condition were present, the lockjaw lasted about a week, opisthitonus was pronounced and the convulsions of the muscles would come on at any time day or night. No antitoxin was used, but potassium bromide was administered in twenty- to thirty-grain doses every hour

for four or five hours, when it began to produce its effect, after which it was given on a two-hour basis. There was a small quantity of tincture of opium used in the early stages, but this was discontinued after the first day or two. After the severity of the spasm was relieved, it was observed that the stomach did not seem inclined to tolerate the bromide much longer and other narcotics were then resorted to. This was just prior to the beginning of convalescence. In about three weeks after the onset of the attack the child was able to sit up in bed and be helped up and sit in a chair, and now, several weeks later, she is able to go about the house. Her convalescence has been rapid.

NEW YORK STATE MEDICAL ASSOCIATION.

NEW YORK COUNTY BRANCH.

Stated Meeting, Held December 16, 1901.

The President, Parker Syms, M.D., in the Chair.

Double Fibroid of the Uterus.—Dr. Frederick Holme Wiggin presented two large fibroid tumors that had been removed from a uterus. He also showed other fibroid specimens and stated that he believed firmly that fibroids should be removed whenever they give serious symptoms. He has seen carcinoma of the ovary develop in cases where fibroid of the uterus existed and he has had no doubt that the malignant degeneration was due to the constant irritant presence of the fibroid and the congestion of the tissues which resulted. Malignant degenerations as the result of permitting fibroids to remain he considers to be not a rare sequela. This reason alone would suffice as an indication for their removal even in elderly persons. Deciduoma malignum used to be considered rare. When J. Whitridge Williams in 1895 presented the first American case it was thought a curiosity. The tumors have not become more frequent, but they have been found to occur much more frequently than was thought. Dr. Wiggin presented a specimen of this form of tumor and had some time ago another case in which he suspected its presence. The patient gave a history of having skipped three menstrual periods and then suffered from severe hemorrhage. The bleeding became severe, abortion was suspected and she passed a hydatid mole. The principal symptom for which she came to the hospital had no relation to her uterus, but consisted in severe sciatic pain. Extension of the leg was extremely painful, while flexion gave some relief. Her uterus was found to be about the size of an orange, though perfectly movable. Her condition was considered to indicate curettage. The curette did not bring away much material, but as the result of its use an enormous hemorrhage began. It was the largest hemorrhage Dr. Wiggin had ever seen. A stream of blood the size of the index finger that could not be stopped flowed from the vagina. A clamp was accordingly applied to the uterine arteries and the uterus was removed. This was done without hesitation because of a recent incident in the hospital. A patient on whom curettement was done suffered severely from hemorrhage and before it could be stopped by ordinary methods she was dead. In Dr. Wiggin's case fifteen hundred cubic centimeters of salt solution were introduced into a vein after the operation, and the patient recovered without incident.

Pathologist's Report.—Dr. Jeffreys said that the clinical history of the case, the appearance of the uterus, and especially the immense hemorrhage after the curettement, all point to the presence of a deciduoma malignum. The microscopic character of the growth is not sufficiently typical to make the pathological diagnosis absolute. As all previous cases of deciduoma malignum have proved fatal, because of the malignant invasion of other organs, it is probable that the after-history of this case will clear up the diagnosis. So far there is no lung involvement, though the usual rule is to have metastases of this form of tumor to the lungs. Dr. Jeffreys presented microscopic sections of the tumor and stated that he considered it to be deciduoma malignum in a very early stage. There were marked invasions of the uterine walls by characteristic portions of decidual tissues. These point out the malignancy of the growth and seem to settle all doubt as to its absolute character, though so far these tumors have not been seen at so early a stage as in this case.

Surgical Anatomy of the Lung.—Dr. Irving S. Haynes of New York made a series of demonstrations on the cadaver to illustrate the surgical anatomy of the lung. He pointed out the costophrenic space which in the mid-axilary line begins about the ninth interspace and in the scapular line begins about the eleventh interspace. This is in the living subject and in conditions of health only a potential space. Effusion of fluid displaces the lung and the diaphragm and, hence, creates a space within whose limits there is favorable opportunity for operation. Dr. Haynes pointed out how closely the kidney and the spleen come up under the diaphragm and suggested the surgical possibilities that their relations involved. He pointed out how far the pleura rises up into the neck and indicated its limits at from half an inch to three-quarters of an inch above the clavicle. Dr. Haynes demonstrated the recent operation outlined by a French surgeon for the removal of foreign bodies from the right bronchus. Anatomically this operation is perfectly possible, surgically there seems serious danger of leaving the patient a corpse. The muscles of the back have to be cut through, the ribs resected and, at a depth of over three inches in the tissues, the azygos vein is discovered crossing the right bronchus. Care must be taken not to wound this. After making an opening three inches deep the operation is only just begun and the right bronchus has still to be opened. The operation seems theoretical rather than practical.

Status of Tuberculin.—Dr. E. A. de Schweinitz, Chief of the Biochemic Laboratory at Washington, D. C., sent a paper which was read by the Secretary on the use of tuberculin and of the products obtained directly and indirectly from the tubercle bacillus in pulmonary tuberculosis. The conclusion of experts is that neither the new nor the old tuberculin is effective in therapeutics. Dr. Otis of Boston, who has had considerable experience with tuberculin T. R., says that his faith in the substance as a diagnostic aid has been sadly shaken. In human beings men with outspoken tuberculosis sometimes fail to show any reaction after injections of the tuberculin. This is not true for animals. Very carefully conducted tests on animals show that tuberculin fails to demonstrate the presence of tuberculosis in a very small fraction of one per cent. of the cases. The tuberculin that is used for diagnostic purposes in animals is from human tubercle bacilli. At present these tubercle bacilli have been grown so frequently upon artificial media that they are innocuous for guinea-pigs. The properties of the substance, however, for diagnostic purposes remain unimpaired. With regard to the tuberculin from human and bovine tubercle bacilli, their action upon other animals seems to be about the same. Avian tuberculin seems to be practically identical in its effects with human and bovine tuberculin.

Tuberculin for Prophylaxis.—It is possible that tuberculin may yet be used for prophylactic purposes. Certain very encouraging observations in this line have

recently been made. In animals the continued use of increasing doses of tuberculin gradually renders the animal immune to larger and larger doses of virulent tubercle bacilli. These observations seem to show that the use of tuberculin for diagnostic purposes in human beings is not only permissible, but in suitable afebrile cases may actually prove of service in producing a certain reactive immunity of tissues.

Human and Bovine Tuberculosis.—The question of the distinction between those two processes is of intense interest just now because of Koch's declaration in London last August. Dr. Schweinitz is in the midst of a series of experiments that may help to throw some light on the matter. Monkeys were experimented upon and proved to be more susceptible to bovine tubercle bacilli than to those obtained from human sputum. The baboon, which is more nearly like man than the ring-tailed monkey, which was also used in these experiments, proved to be less resistant, though it is larger in size, and died of general tuberculosis six weeks after the injection of bovine tubercle bacilli. The smaller ring-tailed monkey lived for eight weeks and the infection was not so general.

Antituberculous Serum.—Serum prepared from the blood of animals injected with increasing doses of virulent tuberculous material has been used with some success in certain cases. Results have been so encouraging at times that the question of its possible usefulness must not be lost sight of. Tuberculosis, however, is a disease in which it is extremely easy to be self-deceived with regard to therapeutic effects. It will take a long time before the question of the absolute usefulness of this remedy can be decided.

Dr. J. Edward Stubbert of Liberty, N. Y., read a paper on the "Early Diagnosis of Pulmonary Tuberculosis with X-Ray Pictures of Diseased Lungs." This paper will appear in a subsequent issue of the MEDICAL NEWS.

Surgery of Pulmonary Tuberculosis.—Dr. William G. LeBoutillier said that it has always seemed as though surgery ought to be of practical use in tuberculosis of the lungs. At first it was thought that the introduction of drugs into cavities would prove curative. Then, too, it was considered that actual drainage of septic materials might be secured with the production of artificial collapse. After some unsatisfactory observations, however, the injection of chemicals was abandoned. Recently benefit has been derived from the injection of iodoform introduced through an incision in cases in which microscopic diagnosis demonstrated the existence of tubercle.

Nitrogen Injections.—These are now under trial. Favorable results have been reported. Undoubtedly this is an imitation of Nature's method of curing tuberculosis. Where small, limited areas of tuberculosis exist they would be especially suitable for extirpation. These are, however, just the cases that get better under simpler methods. If there is pyogenic infection and secondary symptoms occur, then surgery should be thought of. Aspiration and injection of cavities have not proved satisfactory, probably because the incision was too small. Obliteration of cavities is Nature's method of curing tuberculosis. Often, however, obliteration of the cavity fails, because the lungs are adherent and so collapse of the walls of the cavities cannot occur. Surgery may do good here by freeing the lungs from adhesions, and especially is this liable to do good where there is a single large-sized cavity. The injection of nitrogen gas should be employed whenever there are no adhesions. Hemorrhages can be treated very satisfactorily by means of nitrogen injections.

Treatment of Tuberculosis.—Dr. Charles E. Quimby said that when patients become ill with tuberculosis physicians are apt to send them to nearby sanitaria. When they themselves get ill they pack up and go to Denver. The climatic treatment of tuberculosis is undoubtedly the most effective. If patients insist on staying in the city we have no specific treatment, but we can do much to help them. There are two principal indications: First, increase the systemic defense, and, second, minimize the offensive forces. It is important to induce as soon as possible a high grade of nutrition. Patients should live high and develop gout as soon as possible. Patients with gouty tendencies do not develop tuberculosis. For this purpose tonics are necessary. Warburg's tincture is a good remedy. The use of the alteratives, especially mercury and arsenic, is to be recommended. Because of hepatic stimulation some form of oil should be taken rather frequently. If there is fermentation in the intestine, with tendency to colicky pains and diarrhea, castor oil should be used. Otherwise olive oil should be employed in tablespoonful doses three times a day or oftener. For stimulation of the general circulation hydrotherapy is extremely important. After the application of water dry friction should be employed. Any one who has seen how effectually a hacking cough can be relieved by a brisk rubbing of the thorax, back and buttocks, will never neglect the use of this therapeutic measure. The pain of dry pleurisy can also be removed in this way. The resolution of the inflammatory process on which dry pleurisy depends can also be hastened by the stimulation of the peripheral circulation.

Pneumatic Cabinet.—For the arrest of hemorrhage, treatment in the pneumatic cabinet is extremely effectual. Patients who are coughing up blood are relieved almost immediately by treatment in the cabinet. The inhalation of the vapors of alcohol formalin and of ozone gas is a useful remedy. The hanging-up in a sleeping-room of cloths that have been wrung out in alcohol and formalin does good to the patient and at the same time probably renders the rooms less dangerous for other people.

Tuberculous Patients at Lakewood.—Dr. William G. Schauffler of Lakewood, N. J., said that physicians are entirely too careless in sending patients with incipient tuberculosis away from home. If a patient is moderately well to do and his physician discovers that he has a tuberculous focus in his lungs, it is the custom to tell him briefly that he must go away from home for a time and take care of himself in the country. Lakewood is suggested as one of the possibilities for this stay away from home. The patient is told that he must stay out of doors most of the time, but nothing is told him of the inclemencies of the climate at Lakewood. At this season of the year it is no unusual thing to have a difference of fifty degrees between two successive days at Lakewood. For this sort of thing the patient is utterly unprepared. In his rather run-down condition with tendencies to fever and an appetite that is not very good, the patient, if he exposes himself, is very apt to be brought down with a congestive chill. As the result of this his tuberculosis is relighted up. He has to keep to his room for some time, his appetite is seriously disturbed and in general his condition is worse than it would be at home. When he does get out some of the precious time of his outing from the city is already gone by with harmful rather than beneficial results. It is too much the custom for city physicians to tell patients that in a short time they will be better. This is all right if the idea is to encourage the patient, but if the person has but

very little money he may easily go to Lakewood with the notion that a few weeks of stay will improve his condition so much that he can return to the city with safety. At the end of a few weeks he finds scarcely any improvement and, as Lakewood is an expensive place, all the money that he can afford to spend on a stay away from home is gone. As a rule, patients should not be sent to an expensive health resort when they may be more comfortable at home. Physicians at Lakewood see the inadvisability of this almost every day.

Home Treatment.—Dr. Schauffler insisted very much on individualizing the advice that must be given to patients. This must vary especially with the pocket-book of the sufferer. Wealthy patients can be readily advised to leave home for an unlimited time; but patients in moderate circumstances are apt to feel the drain upon their resources if their stay is to be long continued at an expensive hotel. For poorer patients it is absolute nonsense to make them dissatisfied by suggestions that they cannot follow, or to tempt them to raise a sum of money that will enable them to stay so short a time at Lakewood or some other expensive place that practically no good will result.

The X-Rays in Diagnosis.—Dr. Henry P. Loomis said that his experience with the X-rays in the early diagnosis of incipient tuberculosis did not quite bear out Dr. Stubbert's statement. The use of the fluoroscope does not make it possible to recognize tuberculous conditions until considerable thickening has occurred. By this time the disturbance of respiration and especially prolonged expiration will have become noticeable. The X-rays are of avail in assisting one to map out cavities better than by percussion. Dr. Loomis' experience with tuberculin in the diagnosis of tuberculosis has been very bad. He has been fearful of the results in some cases and has failed to obtain reaction in certain well-marked cases of pulmonary tuberculosis. The method of diagnosis with tuberculin is entirely too dangerous, considering how little advantage is to be gained from its use even under the most favorable circumstances. While the use of the method by such conservative observers as Trudeau shows that when carefully employed it may be of service, it is by no means a method for general employment. For the early diagnosis of initial lesions of tuberculosis in the lung, certain localized areas besides the apices should be carefully examined. The physician should never neglect to listen at the root of the lungs where the smaller bronchi are given off. It is in the smaller bronchi that the tuberculous processes usually begin. Auscultation of the root of the lung may be practised to best advantage by having the patient put the palm of his hand on the opposite shoulder. This raises the scapula and exposes a portion of lung that is often affected in incipient cases of tuberculosis, before other parts show any sign of the affection. Physical signs will often be found here long before bacilli occur in the sputum.

Prognosis of Tuberculosis.—As the result of association with sanitaria in which it is advisable that patients should if possible get well within a year, so as to leave places for other patients, Dr. Loomis' attention has been especially directed to the prognosis of incipient cases of tuberculosis. The most important factor for a patient in this matter is his stomach. A bad stomach always means a bad prognosis. This does not mean that the case is hopeless because a cough mixture easily disturbs the patient's stomach. What is meant is that patients who suffer easily from indigestion have an unfavorable outlook. The occurrence of rapid heart at the begining of a tuberculosis when the physical signs are very slight is a bad sign. This shows an instability of the nervous system controlling the circulation, and the patient's future depends to a great extent on his circulation compensating for his pulmonary lesions. If, with a slight apical catarrh, a patient has a pulse-rate of 105 to 115, the prognosis is never good. Such patients are slow to improve and relapses are rather frequent. If, notwithstanding the fact that their tuberculosis is in its incipiency, patients continue to lose in weight under careful treatment the prognosis is not good. The cure of tuberculosis depends to a large extent on the patient putting on weight. If they have no tendency to do this in the early stages of their disease, it is a sign that their internal metabolism is not of the kind that will enable them to compensate for the drain upon their forces due to the presence of a focus of infection in their tissues. Except where heredity is a very prominent factor in the disease and a number of the patient's relatives have died from tuberculosis, simple inheritance does not seem to make the prognosis unfavorable. Vital resistance to tuberculosis is largely a personal rather than a family matter. Patients of a cheerful disposition get along best. There is a tradition that all cases with tendencies to pleurisy do well. Tuberculous affections at the base of the lung are apt to do badly.

Blood-Pressure as an Incipient Symptom.—Dr. S. A. Knopf said that an important symptom of early tuberculosis that may be recognized long before any physical signs are present is a drop in the blood-pressure. According to Professor Potain of Paris this was one of the most important diagnostic signs of the early stage of tuberculosis. It occurs long before any other sign and may be obtained readily with a manometer especially made for this purpose. Dr. Knopf's experience with tuberculin has been very sad. He does not think that any material for diagnostic or remedial purposes should be used by a physician on patients unless he would be willing to have it used on himself. Very few physicians would be entirely willing to have tuberculin used on them merely for diagnostic purposes.

Sanatorium at Home.—Sanatorium treatment at present is only possible for the wealthy and for those better provided with pecuniary means. The great mass of the people who become ill with tuberculosis must be treated at home. For them the great lesson of the open-air treatment at home is important. If nothing better than a steamer chair can be procured they should recline on this on a balcony in the open air for most of the day. If the balcony is out of the question, then they should sit at an open window even during the winter. The other element in the successful treatment of tuberculosis at home is the absolute regulation of every moment of the patient's life and of every portion of his dietary. Undoubtedly, hydrotherapy is of great benefit in tuberculosis. For its efficacious employment, however, an expensive bathing establishment is not necessary. Even a bath-tub can be dispensed with if none is at hand. Friends of the patient may be instructed to pour pitchers of cool water over him and the practice of massage and rubbings with alcohol will complete the stimulating influence upon the peripheral circulation which means so much to tuberculous patients.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Eleventh Annual Meeting, Held in Chicago, December 18 and 19, 1901.

The President, A. F. Jonas, M.D., in the Chair.

Old Shoulder Dislocation with Report of a Case.—

Dr. J. Rudis-Jicinsky of Cedar Rapids, Ia., presented a paper on this subject, showing the work of the X-ray in injuries to the joints, in luxations, fractures, the growth of callus, etc. He said in closing that one could period, when the organisms disappear, is still a exact position of the fragments.

Irreducible Backward Dislocation of the Astragalus.—This subject was discussed by Dr. W. Jepson of Sioux City, Ia. He did not believe it was possible to bring about the reduction of a backward dislocation of the astragalus without opening the joint and bringing about a reposition of the bone by direct manipulation. The astragalus should only be removed where the bone is completely separated from its ligamentous attachments.

Internal Injuries of the Knee-Joint.—Dr. M. L. Harris of Chicago referred to two varieties of injuries to the inner structures of the knee-joint, which he believed were quite common, and reviewed the ways in which the injuries could be received and the operative treatment.

Ankylosis of Joints.—Dr. John B. Murphy of Chicago recommended arthroplasty for the relief of ankylosis. He would treat such joints as one would treat non-union of fractures, as suggested by Chlumsky, from the interposition of foreign material between the fragments. He had employed the method successfully.

Treatment of Dislocation of the Clavicle Through Open Wound.—Dr. James B. Moore of Minneapolis, Minn., read a paper on this subject. Quite recently he had treated a case by cutting down upon the dislocated bone, replacing it and the surrounding soft parts and fastening them by means of silver wire and catgut sutures. The result was very satisfactory.

Etiological Factors in the Production of Tumors.—Dr. George Halley of Kansas City, Mo., referred first to the literature on the subject, including its etiology. He differentiated the processes of inflammatory conditions and tumor growths, and said that inflammation, because due to irritation, was the prime factor in the production of morbid growths.

Surgical Procedures in the Removal of Fibromyoma of the Uterus.—Dr. Joseph Eastman of Indianapolis, Ind., believed that the morphology of the tumor and environment of the patient should first be considered before removing the tumor.

Myomectomy; Its Place in the Treatment of Fibromyoma of the Uterus.—Dr. O. Beverly Campbell of Chicago, said that myomectomy can only be applied to well-selected cases, but should be the preferred method in every case where possible without risk to the patient and where the ovaries can be conserved with the uterus. Operative interference should be advised wherever myomectomy is possible; it is safe and free from risk.

Management of Uterine Fibromyomata Complicated by Pregnancy.—Dr. Miles F. Porter discussed the subject. Pregnancy he considered a serious and frequent complication of uterine myofibromata; each case was a law unto itself and should be treated accordingly. Of the utmost importance are the life of a mother and of the child.

The Treatment of Fibroids of the Uterus by Electricity.—This was the title of a paper by Dr. Franklin H. Martin of Chicago. He was of the opinion that the evolution of surgery for fibroids had gradually reversed the relative position of the galvanic treatment; that vaginal and abdominal hysterectomies and myomectomies for fibroids giving rise to serious symptoms, with their legitimate mortality reduced to one and two per cent., are remedies more conservative in their results than the treatment of the same tumor by electricity. While electricity frequently relieved, it seldom removed a tumor, and he believed that it had been properly superseded by surgery.

Discussion.—Dr. W. O. Henry of Omaha, Neb., thought that the electrical treatment of these tumors was overdone. Dr. Van Buren Knott of Sioux City, Ia., was of the opinion that myomectomy was a conservative procedure. Dr. B. B. Davis of Omaha, Neb., said that in case of myoma complicating pregnancy the tumor should be removed before the woman became pregnant. He condemned the induction of abortion before delivering or removing the tumor. Dr. C. H. Mayo of Rochester, Minn., mentioned the case of a woman of thirty years upon whom he had operated for tumor complicating her first pregnancy. She made a good recovery. Dr. A. C. Bernays of St. Louis, Mo., was in favor of myomectomy. Dr. Charles H. Wallace, of St. Joseph, Mo., believed that myomectomy was comparatively easy, but Dr. J. N. Warren of Sioux City, Ia., did not think that it was an easy operation. Dr. W. A. Tichenor of Chicago considered myomectomy a formidable operation. Dr. James E. Moore of Minneapolis, Minn., referred to the possibility of doing myomectomy through the vagina.

The Use of the Gall-Bladder as a Suspensory Ligament for Prolapsed Liver.—This was the title of the presidential address by Dr. A. F. Jonas of Omaha, Neb. He said that the liver was sometimes displaced downward to a considerable degree and that there was generally modified function and a definite clinical picture. He narrated the case of a woman who had suffered for three years from paroxysms of severe pain in the right hepatic region. On operation the liver was found three finger-breadths below the costal arch; in appearance it was normal. The gall-bladder was found with calculi in its walls. A displaced and movable kidney was likewise found. The gall-bladder was used as a suspensory ligament. The wound closed nicely and the patient was directed to wear a snugly-fitting abdominal band.

Heart Suture.—Dr. B. Merrill Ricketts of Cincinnati, O., read a paper on this subject. He had conducted many experiments on animals with reference to suturing the heart. Of twenty-seven cases of suture of the heart for wounds in human beings, at present noted, seven recovered. He had employed kangaroo-tendon in ligating the coronary arteries and fine silk sutures in the walls of the heart, as it was necessary to use a long-lived catgut. He believed that the time had come when a surgeon should no longer hesitate to open the chest for serious injuries of the lung and heart.

Fracture of the Metacarpal Bones and Oblique Fracture, Simple or Compound, of the Forearm.—Dr. W. W. Grant of Denver, Col., presented this paper. He referred to the application of Buck's extension in fractures of the femur, forearm and hand, and certain inflammatory conditions of the wrist and elbow-joints.

Total Extirpation of the Prostate Gland Through a Median Incision in the Perineum.—Dr. Alexander Hugh Ferguson of Chicago reported several cases operated upon by himself in which the results were better than had ever been secured by the suprapubic route. He described the technic of the operation and said that hemorrhage was avoided so long as one was careful to work within the capsule.

Symptoms, Signs, Diagnosis, Prognosis and Palliative Treatment of Hypertrophy of the Prostate.—Dr. Lewis Schooler of Des Moines, Ia., read a paper on this subject. In considering the palliative treatment he mentioned massage, aspiration, catheterization, dilatation and cystotomy. He made a plea for advance in therapeutic resources.

Pathology and Etiology of Prostatic Hypertrophy and Suprapubic Drainage as a Method of Treatment.—Dr. A. C. Bernays of St. Louis, Mo., presented this paper. The essayist believed that suprapubic cystotomy in stone in the bladder, hypertrophy of the prostate, etc., was a recognized and successful method of treating those conditions. By means of the drain he could give entire physiological and mechanical rest to the bladder, which rest would have a beneficial effect upon the hypertrophied prostate. However, he was of the opinion that as a radical cure for prostatic hypertrophy suprapubic drainage was a failure. He was opposed to operations in the dark.

Suprapubic Prostatectomy.—Dr. C. H. Mayo of Rochester, Minn., read a paper on this subject and said he believed that one-half of the enlarged prostate could be equally well reached from above or below, one-fourth better from above, one-fourth better from below, and a few would require a combined operation.

The Indications and Limitation for the Bottini Operation.—Dr. Louis E. Schmidt of Chicago read an interesting paper in which the writer concluded that the good results of the Bottini operation depended on the correct selection of cases, the proper technic of the operation and proper after-care, and the immediate correction of errors and misbaps.

New Method of Anchoring the Kidney.—Dr. Byron B. Davis of Omaha, Neb., read this paper. The author described very minutely the technic of his operation and gave the history of a case, saying that he reported the matter because it represented a new principle in treatment.

Intestinal Obstruction from Meckel's Diverticulum, with Recovery.—Dr. A. E. Halstead of Chicago summarized all cases accessible to him that could be found in literature. The total number of cases reviewed was 72; males, 45; females, 17. Deaths, 44. Recoveries, 21. Attachment or non-attachment of diverticulum or diverticular ligament, mentioned in 66; point of attachment noted in 44; to mesentery in 21; to umbilicus in 14; not determined in 3; diverticulum attached, 47; diverticulum free, 19.

Grave Abdominal Injuries without External Evidences of Traumatism.—Dr. R. Harvey Reed of Rock Springs, Wyoming, presented a paper on this subject. It is the surgeon's duty to make an exploratory incision in all cases where there is real doubt as to the nature of an injury and particularly so when the constitutional symptoms pointed to a condition more serious than was indicated by either the subjective or objective symptoms.

Dr. A. W. Abbott of Minneapolis, Minn., had experimented largely on animals with a view to determining the immediate effects of intestinal exposure. He concluded that the loss of water was unimportant, that the loss of heat was very important, as it temporarily placed the temperature of the intestines below the safety line, and that the drying of the peritoneum was so decided as to disturb the normal anatomical relations.

Our Hospitals.—This was the title of a paper by Dr. H. D. Niles of Salt Lake City, Utah. He believed that so long as a hospital measured its own usefulness by the number of patients treated, the standing of each member of the staff would be largely estimated by the size of his personal following, and the commercial spirit would rule both the institution and the individual to the exclusion or great detriment of scientific work. If the profession was ever to secure a voice it should formulate and adopt a business code that should not only meet the highest requirements of the ethics of the profession, but, at the same time, command the respect and win the confidence and support of the twentieth century public.

Surgery of Spina Bifida.—Dr. Van Buren Knott of Sioux City, Ia., read this paper. The clinical features, diagnosis, prognosis and treatment were discussed. He also reported four cases, and was of the opinion that meningoceles, meningomyeloceles and syringomyeloceles may be considerably benefited by operation.

The following officers were elected for the ensuing year: President, Dr. James E. Moore, Minneapolis, Minn.; First Vice-President, Dr. J. R. Hollowbush, Rock Island, Ill.; Second Vice-President, Dr. W. W. Grant, Denver, Col.; Secretary-Treasurer, Dr. George H. Simmons, Chicago, Ill.

The next meeting will be held in St. Joseph, Mo., December 29 and 30, 1902.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK

Stated Meeting, December 23, 1901.

The President, Frank Van Fleet, M.D., in the Chair.

Etiology and Pathology of Osteomyelitis.—This first paper of the evening was read by Dr. Joel E. Goldthwaite of Boston, Mass. Osteomyelitis is an acute infectious process always going on to suppuration and due to the presence of some microbic agent within the bone. It has been suggestively described as furunculosis of bone. In the ordinary skin furuncle a hair follicle becomes infected by pus micro-organisms. This produces the usual manifestations of inflammation. Leucocytes are poured out around the inflammatory focus, and this is walled off from absorption into the system. After a time the inflammatory exudate becomes fluid and as it is near the surface forces its way out with spontaneous evacuation of the infective material. Owing to the position in which pus develops within the bone shaft, it is retained, cannot find any avenue of exit, and so in osteomyelitis there is danger of general infection. Not infrequently the purulent process spreads at least through the bone marrow itself, producing quite extensive inflammation. At times, however, it remains as an absolutely localized process and may for years produce intermittent effects of discomfort and positive pain simulating joint disease. Dr. Goldthwaite then detailed some typical cases of osteomyelitis to illustrate its etiology and pathology.

Osteomyelitis After Measles.—The patient was a lad, six and one-half years of age, who shortly after an attack of measles was taken with a sharp pain in the upper part of the tibia. This became intense and swelling of the parts ensued with spreading of the area over which the pain was felt. The Roentgen rays showed that the whole of the upper part of the tibia had become separated as a sequestrum from the lower part. This type of extensive bone involvement is not infrequent. In this case it was due to the presence of the streptococcus in pure culture. This is the type of disease that is more particularly described in the textbooks, but there are others much less classical in character.

Localized Osteomyelitis.—A child, eight years of age, came to the hospital with a history of having fallen on the stairs. It was thought that he had sprained his ankle. After a few days both ankles became swollen and tender and then it was thought that the child was suffering from rheumatism. The Roentgen rays showed the presence of a localized abscess in the lower part of the tibia on one side and of localized abscesses in the tibial malleolus and in the os calcis on the other side. Though these two abscesses were situated so close together they were due to different causes. From one of the abscesses was obtained

a pure culture of staphylococcus aureus. This abscess was situated in the os calcis and contained yellow, creamy pus. The abscess in the tibia contained whitish pus in which was found staphylococcus albus in pure culture. Most of the clinical differences that are noted in osteomyelitic processes are due to differing varieties of micro-organisms which cause them. As a rule, the streptococcus produces serious diffuse conditions. The staphylococcus causes much more limited suppuration and, as a rule, a well-defined abscess. The staphylococcus aureus is the most frequent micro-organism in the production of osteomyelitis, as it is also the most common of the ordinary pus micro-organisms. Out of 130 cases of osteomyelitis carefully examined by bacteriological methods, 103 cases contained staphylococcus aureus.

Other Micro-Organisms.—Not infrequently the pneumococcus causes osteomyelitis. The pathological process occurs shortly after a pneumonia and runs a very rapid course. The pneumococcus has a very curious tendency to affect the epiphyseal ends of the long bones. The typhoid bacillus is rather more frequent than the pneumococcus in producing osteomyelitis. Keen, in his monograph on the surgery of typhoid fever, collects 38 cases of typhoid (pure culture) osteomyelitis. Other micro-organisms also produce osteomyelitis. In one case Dr. Goldthwaite found the *bacillus fœtidus*. As a matter of fact, osteomyelitis is not a specific disease, but may be due to almost any micro-organism or to mixed infection.

Incidence of Osteomyelitis.—About one-half the cases of the affection occur between the ages of thirteen and seventeen. It is considerably more frequent in boys than in girls. The reason for this is not far to seek. Boys are more subject to injuries in their sports than are girls. Osteomyelitis occurs especially after exhausting disease, as after diphtheria or after the exanthemata. In these cases it is due not to the micro-organism that causes the disease, but to a secondary infection. Usually there is a history of some slight injury to account for the localization of the lesion.

Avenue of Entrance.—Osteomyelitis is not infrequently secondary to a furuncle or a small ulcer. The micro-organisms seldom seem to find their entrance through the intestinal tract, though from the occurrence of pneumococcus osteomyelitis, it is evident that the lungs are not so capable of keeping out infection. Ullmann showed that animals fed with large quantities of bacteria, mainly pus micro-organisms, did not suffer from osteomyelitis, even though fractures of their bones were artificially produced with the idea of causing a localization of the purulent infectious material in them. Dr. Goldthwaite is of the opinion that spinal osteomyelitis is much more frequent than has been thought. The laminæ are much more liable to be affected than the bodies of the vertebræ. Many of the reported cases of cured spinal caries without deformity are really instances of osteomyelitis of the vertebræ. An osteomyelitic abscess may produce spinal cord pressure and paralytic symptoms.

Chronic Osteomyelitis.—Dr. Goldthwaite has had a case in which some soreness in the neighborhood of the joint, but really localized in a long bone, occurred not long after typhoid fever. At irregular intervals, sometimes of months, sometimes of years, there were subsequent attacks. The pain was usually referred to the knee. Careful examination finally revealed the existence of a localized area of tenderness over the head of the tibia. On operation a localized abscess was found, probably due to the attack of typhoid fever over thirty years before.

Symptoms of Osteomyelitis.—Dr. Robert Tunstall Taylor of Baltimore, Maryland, read a paper on the clinical aspects and differential diagnosis of osteomyelitis. He said that his attention had recently been called to a chapter on the symptomatology of osteomyelitis written by the elder Nathan Smith of Yale more than 100 years ago. This gave such a complete idea of the symptoms and clinical course of osteomyelitis and was so exactly the same as might be written at the present moment that Dr. Taylor scarcely felt that he had a right to present the subject anew. The premonitory stage presents no very definite symptoms. There is apt to be some malaise and apathy, as the result of the absorption into the system of infectious material. After these uncomfortable feelings have continued for some time, there is apt to be a profound chill or, in children, a convulsion. Severe constitutional symptoms may follow these preliminary manifestations. There may be metastases of septic material to the meninges or to the heart, or there may be septic or fat emboli in the brain, causing sudden death.

Active Osteomyelitis.—Usually the most prominent symptom of the active stage of the disease is excruciating pain which is described by patients as of an intense, boring character. This is due to the fact that the pus is confined. As soon as it succeeds in finding its way out of the bone into the soft tissues, or when it is evacuated in any other way, there is an immediate sense of relief. The most useful symptom is tenderness. This is usually localized, but may be diffuse if the process has existed for some time. The osteomyelitis usually occurs in the long bones and especially those of the lower extremity. But it may occur in the flat bones and is not infrequent in the sternum. It occurs much more frequently in the bones of the spinal column than has been thought. The parts immediately over the osteomyelitic area do not become red and hot unless the pus finds an exit through the bone and approaches the surface. It is important to remember that pus microbes may exist in bone marrow for twenty years, only producing occasional symptoms of not very serious character, and then, finally, there may be a relighting up of the inflammatory process with severe symptoms.

Differential Diagnosis.—The important aid to differential diagnosis is the use of the Roentgen rays. The bacteriology of the blood is, however, also of importance. Frequently the bacteria will be found free in the circulation if the symptoms are generalized. Leucocytosis is always present in osteomyelitis and this enables us to differentiate it rather easily from typhoid fever, or scurvy or begining sarcoma. Dr. Richard Cabot of Boston says that the blood in osteomyelitis is of more diagnostic value than any other element. In rheumatic pains, growing pains and the like, which sometimes, when very severe, arouse suspicion of the existence of osteomyelitis, there is no leucocytosis.

Tuberculous Joint Affections.—Dr. H. Augustus Wilson of Philadelphia read a paper on tuberculous, rheumatic and other affections of the joints, especially with reference to their etiology, pathology and differential diagnosis. He said that one of the most prominent features in tuberculous joint disease is the existence of tuberculous heredity in a very large majority of the cases. While the tuberculosis may not be congenital in any true sense, it is probably acquired at a very early age from association with tuberculous relatives. In early stages of tuberculous joint disease, the bacilli in the inflammatory products of the joint lesions take very well the ordinary stains for tubercle bacilli. Later they fail to take the stains so well. Finally, after considerable degeneration has taken place, the caseous material presents no signs

of the existence of tubercle bacilli when staining materials are used. Often when such degenerated tuberculous material is injected into animals, it fails to produce tuberculosis. In the course of time the mass has become non-infectious. This is the idea on which is founded the present system of therapeutics for these affections. If the parts are set at rest long enough Nature is able to protect herself and gradually to make the nodule of tuberculosis innocuous. The most important point in the treatment of tuberculous joint disease is its early diagnosis; the sooner the affected parts are put at rest, the surer and the more completely will the lesions heal. Unfortunately, the early diagnosis of tuberculous joint disease is not so easy as might appear in the perfectly characteristic symptoms that occur when the lesions are well developed. Very often the triviality of the symptoms at the beginning blinds the physician to the serious nature of the process that is at work. Orthopedic specialists are apt to blame the family physician for delay in the diagnosis of these conditions, but it is often almost impossible to recognize them at the beginning.

Referred Symptoms.—Another difficulty in diagnosis is the fact that the symptoms are rarely referred directly to the joint involved, but to some more or less distant part. The nerve to the joint and the muscles that pass over it are the physical basis for these reflex symptoms. Muscular rigidity and pain around a joint must always be considered significant. Night cries, due to the fact that the muscular rigidity, which during the day saves the patient from pain, is relaxed at night with the result of contact of diseased bone surfaces that causes pain, are often an early symptom. They occur especially in the early part of the night, before the child gets into its deepest sleep. Wasting of the muscles around the joint often develops very early in the disease. Within a week or two after the first appearance of joint symptoms some wasting of the muscles may be noticed. The characteristic spindle-shape of the joints, when muscle atrophy has occurred, is often referred to an enlargement of the ends of the bones that make up the joint. Measurements in comparison of the joints on both sides, however, will show that the enlargement is only apparent and due to the muscle atrophy above and below the joint, making it appear larger.

Painful Symptoms.—If there is a suspicion of tuberculous disease of the spine, the patient should be tested by slight jars upon the head. If in a joint in the lower limb, he should be asked to come down on his heels. This will show the existence of tenderness in the spinal or leg joints and constitutes an important symptom. These painful symptoms are so often relieved very early in the treatment by immobilization that the immobilizing apparatus is abandoned very early and the physician has recourse to massage or some other method of treatment. This is always a mistake and must be carefully avoided.

Treatment of Tuberculous Joints.—Dr. A. M. Phelps of New York said that for treatment of hip-joint disease patients should wear the long splint that takes all the weight off the hip-joint. This splint should extend two and a half inches below the hollow of the foot, and the weight of the body should be supported on a padded ring attached to the splint. Before the splint is applied the deformity must be overcome. Contraction of the limb should be overcome by forced extension if necessary. Muscular contraction must be overcome by the application of constant extension. These immobilizing splints for tuberculous hip-joint disease should be worn for from eighteen months to two years. Then a walking splint should be applied which allows of some motion in the ankle, but keeps the hip-joint stiff. To attempt to relieve these cases of the necessity of wearing a splint for a shorter time than this is to invite failure in the treatment and relapse. This apparatus suggested by Dr. Thomas in England makes an excellent splint for knee-joint disease. The patient may be allowed to walk; the splint must come down some two and a half inches below the foot and should be slung over the patient's shoulder. By the use of straps some extension should be applied and by means of other straps the tibia should be pulled well forward.

Aluminum Corsets.—Dr. Phelps exhibited an aluminum corset, light yet strong and so perforated as to secure thorough ventilation. This he considers better than any other apparatus for Pott's disease. It costs more at first, but it will last for ten years, even with reasonably hard usage.

Tuberculous Abscesses.—Whenever there is pus present abscesses should be freely opened and drained. They should not be packed. The inside of the abscess should be thoroughly examined by the finger and all broken down material should be removed. Purulent material should not be allowed to burrow into the muscles and especially not into the tissues around the the rectum, as it produces serious complications. Dr. Phelps uses large speculum drainage-tubes into which a certain amount of material is packed and the tube is allowed to remain in place. When the packing material is removed a good view can be obtained of the affected tissues. These abscesses should be washed out with pure carbolic acid followed by alcohol. This treatment will very often bring a long course of suppuration to an end.

Conservative Treatment.—Dr. Judson said that there is no short-cut to the treatment of tuberculous osteitis of joints. Yet if properly treated these conditions do recover. In a certain sense they are self-limited. Mechanical treatment is of great assistance, because, if the osteitic process is not interfered with, it never becomes serious. The great principle must be *non nocere*. It must be remembered, too, that the child's growth is of great assistance to us in the cure of the tuberculous process. Time is the most important therapeutic element.

Subacute Osteomyelitis.—Dr. George R. Fowler of Brooklyn said that, in spite of the fact that osteomyelitis is usually due to pyogenic micro-organisms, it may run a slow subacute course. This makes the differential diagnosis from tuberculous osteomyelitis difficult. In one case in the sternum after the diagnosis of tuberculous osteomyelitis had been made, the staphylococcus was found to be present, in spite of the chronic course. In the treatment of tuberculous abscesses and especially of chronic suppurative conditions in bones, Dr. Fowler has found that in cases where recurrence is to be feared and where it is often a source of great annoyance to the surgeon and his patient, the use of pure carbolic acid may be of great assistance. After thorough curettement the cavity is filled with pure carbolic acid and then this is lifted out with a pipette. After this alcohol is poured into the cavity and is removed. The pressure of the clot as suggested by Shrady then assists in the reparative process.

Osteomyelitis of Spine.—Dr. Royal Whitman said that acute limited osteomyelitis of the spine is much more common than has been thought. It usually goes on to rapid healing after the pus has found an exit, and these are the cases of so-called Pott's disease that heal without deformity.

Osteomyelitis Not Rare.—Dr. Willy Meyer said that acute osteomyelitis is not rare in this city. If

embolic septic pneumonia occurs in connection with it and other general symptoms it is not easy to detect its presence. A source of infection that is sometimes not considered in these cases is the use of septic dental instruments. More than one-half the dentists in the city either take no antiseptic precautions, or take precautions that are so incomplete as to be of no avail. It is often from suppurative processes within the mouth that osteomyelitis is set up. Dr. Meyer said that in treating tuberculous joints in the arm Beer's method of producing venous congestion by means of elastic constriction should not be forgotten. Dr. Meyer has had a number of cases in which this method of treatment has given excellent satisfaction.

Syphilitic Element.—Dr. Plympton said that in cases of osteomyelitis with tendency to recurrence there is often a syphilitic basis to the disease. In relapsing cases mercury and the iodides should be used freely and will often be found of service. Frequently these cases are due to congenital syphilis and there may be very little to lead one to the suspicion of the existence of this disease.

SOCIETY OF DERMATOLOGY AND GENITO-URINARY SURGERY OF NEW YORK CITY.

Stated Meeting, Held December 13, 1901.

The President, Robert H. Greene, M.D., in the Chair.

Cutaneous Favus.—Dr. E. L. Cox presented a patient suffering from a characteristic lesion of favus on the left forearm. When the patient, a girl about twelve years of age, came for treatment some four weeks ago, she complained of an abrasion on her arm. The characteristic appearances at once pointed out the diagnosis and a history of contact with animals was soon obtained. The little girl was accustomed to play with a cat. There was also a history of a mouse running around the house, apparently so tame that it allowed itself to be caught by members of the family and the little girl had handled it. The mouse disappeared shortly before the little patient came under treatment. It seems not improbable, however, that instead of being tame the creature was really blind. Careful questioning elicited the fact that it had something peculiar about its head. It is probable that it was suffering from favus, which it communicated to the little girl either directly or through the cat. Scrapings from the lesions produced beautiful cultures of characteristic cauliflower-shape when grown upon potato. Treatment of the condition is, of course, easy and it will not be long before the lesions will be made to disappear definitely.

Chancroidal Lymphangitis.—Dr. De Villa presented for Dr. Ramon Guiteras a case of this rare affection. Seven weeks ago the patient had coitus followed in two weeks by sores, three in number, under the prepuce. These caused a phimosis. He then presented himself at the clinic. His prepuce was then still phimosed, very much elongated, edematous, and infiltrated. The whole organ was red and the lymphatics on the dorsum of the penis were much enlarged, thickened and nodular. The pain was severe. One week later the lymphatics broke down, forming three ulcers upon the dorsum of the organ. These were typically chancroidal in character. The ulcers were cauterized and are healing. The patient can now pull the prepuce back a little. He has been injecting black wash beneath the prepuce and also using the lotion between its edges and to cleanse the chancroids on the dorsum of the penis. The lymphatics of the groin have become slightly enlarged during these last few days.

Bubonuli.—In discussing this case Dr. Leviseur said that the lumpy formations on the dorsum of the penis which finally break down are really bubonuli, little buboes. The lymphatics of the dorsum of the penis sometimes catch and retain the infectious agents from the chancroid, particularly if the original chancroid is located underneath an elongated and phimosed prepuce. It is not surprising, then, that a pathological condition should develop similar to that which occurs in ordinary buboes. The swellings are usually smaller in size and break down much more easily, forming crater-like ulcers as in this case. Quite often the occurrence of buboes in the groin is delayed until late in the affection and this seems to have been the case also in the present instance.

Favus of the Nails.—Dr. Leviseur presented the nails removed from a case of favus of the nails and showed a wax cast of the fingers before treatment. The patient was a nurse, twenty-one years old, born in Ireland, who had suffered from an affection of the scalp for six years. Four months ago the nail of the index finger of the left hand began to show symptoms of disease and one month later the third finger was likewise affected. The condition is characterized by the absence of some part of the nail plate and an irregular hypertrophy of the nail bed whenever the horny layer is missing. The border of the latter is undermined particularly in the center where there is a hollow space which almost reaches the lunula. The diagnosis favus

Favus of Nails.

was made and on examination of the scalp, two bald, irregularly oval spots occupying the top of the head were found. They were white and slightly depressed. Dispersed over the rest of the scalp, which was covered by a strong coat of hair, were a number of small red papules covered with a brown scab, but there were no scutula. On December 9th the patient was put under ether and, after disinfecting the fingers thoroughly, both nails were extracted by means of Post's nail forceps. The evulsion of the nails was accomplished without difficulty. The fungus was found in the scrapings taken from the under surface of the extracted nail plates, which seems to be the place of predilection for the settlement of the achorion schoenleinii. There were no spores, but only mycelia. After the operation the finger was covered with iodoform gauze and protected by

a cap formed of small slips of adhesive plaster, which finally was painted with flexible collodion. In this case, as in most of the other cases reported in literature, the scalp showed signs which confirmed the diagnosis. From a microscopical standpoint alone the diagnosis is quite difficult, because it is difficult to obtain scrapings which contain the mycelia. In a case published by Dr. Leviseur in 1898 in the *Journal of Cutaneous and Genito-Urinary Diseases,* conditions were very similar to the present one. The treatment differed only in this, that the nail plates were allowed to grow for some time without cutting and formed a hollow shell from their free border to the lunula. It was then easy to pull them out under local anesthesia with ethyl chloride. Dr. Leviseur believes that the removal of the nail is the best method of curing this obstinate affection after it has once made some inroad and antiparasitic salves and lotions have shown their inability to do good. The new nail developing from the matrix pushes forward the diseased tissue, and all that is necessary to do is to keep the fingers bandaged with an antiseptic salve.

Ordinary Remedies.—In the discussion Dr. Lusk said that while favus in any part of the body is often obstinate to treatment the faithful application of a reasonably-strong solution of caustic potash or of a 10-per-cent. solution of pyrogallic acid in alcohol usually affects a cure. Patience on the part of the physician and sufferer is necessary.

Dr. Whitehouse said that until some recent experience he would have agreed with Dr. Leviseur as to the advisability of removing the nail in these cases. In a recent case, however, he had employed Dr. Johnson's remedy, namely, saturated solution of potassium iodide and tincture of iodine, in patients in whom all other kinds of treatment had failed and the favus fungus completely disappeared and the tissues had resumed a healthy look in six weeks. After three months there was a new smooth nail. This remedy, though rather dark-colored itself, does not produce a dark discoloration of the fingers; in fact, it is scarcely disfiguring at all. This forms a very easy method of treating what is usually an extremely obstinate affection. Dr. Whitehouse thinks that this remedy should be tried before employing the more radical method of avulsion of the nails.

Inconveniences of Other Remedies.—Dr. Goldenberg said that the usual remedies recommended for the treatment of favus are eminently unsatisfactory. Even when most successful they must be employed for long periods and require the most careful attention. Caustic potash and pyrogallic acid have not proved as effective in his hands as they seem to have done in those of others. With regard to caustic potash, Dr. Goldenberg has a word of warning to others. If the nail matrix is exposed, as is not infrequently the case in these patients, applications of strong solution of caustic potash are apt to give rise to severe and lasting pain. For this pain ordinary anodyne remedies, locally applied, fail to give relief. The patients complain very bitterly.

Avulsion of Nails.—In closing the discussion Dr. Leviseur said that the ordinary remedial treatment suggested for favus of the nail had proved so unsatisfactory in his experience that he considered it justifiable to remove the nails, for this seemed to be the only way by which prompt and sure cure could be obtained. In another case under Dr. Leviseur's care some time ago, the patient had been treated by all manner of methods. The old nails were loose and were easily removed and then the new nails, in their growth, proceeded to do away with the products of the old inflammatory process and gave, notwithstanding the severity of the old process, an excellent result.

Cystoscope for Double Ureteral Catheterization.—Dr. Bierhoff presented a modification of the ordinary cystoscope that is meant to facilitate the introduction of catheters into both ureters at the same time, so as to permit of the simultaneous collection and comparison of the urine passed from each kidney. The simultaneous collection of the urine is necessary, especially in such tests as those with methylene blue or phloridzin. With the old form of cystoscope it was extremely difficult to insert the second catheter when one was already in place, and then the removal of the cystoscope often led to the removal of at least one of the catheters from the ureteral opening, because the instrument became entangled in the catheters. The distinguishing features of the new cystoscope are the existence of two complete tunnels for the ureteral catheter and an arrangement by which, after the insertion of the catheters, the cystoscopic portion of the instrument may be turned completely around so as to permit of its removal without the beak interfering with the catheters. This latter provision prevents entanglement and the premature removal of the catheters. Another advantage of the instrument is that the presence of the two tubes enables it to be used as a double-current irrigating instrument. If the fluid in the bladder becomes turbid it may be removed and a fresh solution readily introduced. The use of stopcocks at the external end of the catheter tubes enables the instrument to be used also as a single catheterizing instrument. One of the other advantages of the instrument is that it is entirely made in this country, that it is equal to the best German instrument and that it can be repaired, or parts of it can be replaced without delay and difficulty. While the cystoscopic portions of the instrument, as in all other cystoscopes, can not be sterilized by boiling, but must be cleansed by antiseptics, all the catherizing portion of the instrument can be boiled.

Ureteral Catherization.—Dr. Bierhoff answered certain questions in reference to the employment of ureteral catheterization in general. With regard to direct and indirect illumination, he said that the straight tube which permits of direct illumination may be readily employed in the phantom or where there is a perfectly level vesical floor. In prostatic cases, however, the use of the straight instrument is impossible. Whenever any distortion exists in the bladder, it is usually in the trigone. The straight tube can be always available only when it will be possible to look around a corner by direct vision. If the operator knows his instrument, if he has sufficient illumination, if he knows that the cystoscope will pass, and if clear fluid is in the bladder, there should be no difficulty for an expert to pass a ureteral catheter. The bladder must be sufficiently distended with fluid and the light must be as nearly white as can be obtained. Under favorable conditions Dr. Bierhoff has never failed to pass catheters into the ureters.

BOOK REVIEWS.

PEDIATRICS. THE HYGIENIC AND MEDICAL TREATMENT OF CHILDREN. By THOMAS MORGAN ROTCH, M.D., Professor of the Diseases of Children, Harvard University. Third Edition. J. B. Lippincott Company, Philadelphia and London.

THIS edition shows Dr. Rotch's book in an almost entirely new form, having been most thoroughly and systematically revised. For many years this treatise has been one of the best classics in the English language, dealing with the development and care of children in sickness and in health. Dr. Rotch has not limited himself to the study of disease processes alone; he has given almost as much space to the hygienic care

of the child during health as to the study of diseased conditions.

The chapters on infant feeding are especially valuable, although we confess that it is somewhat unreasonable to impose on the practitioner the long algebraic formulæ which are here taken from Westcott. There are enough simple methods described, however, whereby the home modification of milk may be easily and satisfactorily accomplished. We believe that the medical profession and the lay public alike are to be congratulated that such an excellent work has been so thoroughly brought up to date.

First Aid to the Injured and Sick. By F. J. Warwick, B.A., M.B. Cantab., Associate of King's College, London, and A. C. Tunstall, M.D., F.R.C.S. Ed., Surgeon-Captain Commanding the East London Volunteer Brigade Bearer Company. W. B. Saunders & Co., Philadelphia and London.

This book seems to be a very valuable compendium of practical suggestions. The illustrations show especially the use of the triangular bandage and of unusual forms of bandages of special form—the square bandage, the four-tailed and the many-tailed bandage. The chapter on the immediate treatment of sprains and fractures is very practical because of its suggestiveness as to the use of material likely to be near at hand in case of accident. As a whole the little book is one of the best of its kind. It contains in very convenient form chapters on the transportation of the sick and injured, on poisons and their immediate treatment and the immediate treatment of insensibility and fits.

Text-Book of Nervous Diseases. Being a Compendium for the Use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D., Professor of Nervous Diseases in Cornell University Medical College. Fifth Edition. William Wood & Company, New York.

Dr. Dana's text-book is too well known to need special words of commendation. The fifth edition of the work has been reached in less than ten years. As the subject of nervous diseases is of less general interest to physicians, this fact is of itself sufficient to demonstrate the merits of the book by its popularity among the profession.

The present edition does not differ very materially from the fourth. There are some minor changes in the microscopic anatomy of the nervous system and a short chapter upon the diagnosis of the diseases of the cauda equina. The chapter on myelitis has been rewritten and the book is now thoroughly up to date in this progressive subject. It is an index of present tendencies in neurology that the author has seen fit to add a chapter on general paresis, since, as he says, it is a disorder which belongs fully as much to neurology as to psychiatry. Notwithstanding the additions, careful elision and compression have kept the work from being larger than before, so that it remains a very handy reference-book in its increasingly important subject and at the same time one of the best text-books of the kind in any language.

Greek Thinkers. A History of Ancient Philosophy. By Theodore Gomperz, Professor at the University of Vienna and Member of the Imperial Academy. Translated by Laurie Magnus, M.A., Magdalen College, Oxford. Charles Scribner's Sons, New York.

No philosopher who was unacquainted with modern science could have traced as Professor Gomperz has done the history of all knowledge back to the first deep impulses that stirred the philosophers of Greece to search for facts and truths. In each section the author asks: "What elements of modern science were implicitly present in the doctrines of the earliest philosophers who were seeking for knowledge?" He showed that Pythagorus discovered that sound is subject to a numerical law; that the idea of evolution was foreshadowed in the assumption that the world-process is a continuous one, and that Empedocles anticipated Darwin's doctrine of the survival of the fittest in the struggle for existence. He traces back to their sources the sciences of astronomy, chemistry, physics and botany; but what interests us most is his chapter on Greek physicians.

"The threads that bind antiquity to modern times lie open to view," and it is with his index finger on these threads that the author leads us back through the maze of tradition, mysticism and sophistry to the old and famous center of medicine in the island of Cos, where was born Hippocrates the Great, who was "recognized by all antiquity as the type of the perfect physician." With the art of the dramatist he vivifies the dead names of the physicians of the famous school of Cos, and pictures their keen methods of observation, their faulty generalizations, their conflicts with superstition.

There is in this summary the same perception of essentials and clear expression of relations that characterize the whole book: "The pioneer virtues which distinguished the Coic masters from their opponents were a self-abnegation, and a timely renunciation of ambitions, fascinating enough, and even exalted in themselves, but at that era and long afterward out of reach, and these virtues entitle them to our ungrudging admiration at this day. We recognize their supreme merit in having developed, with tireless powers of observation and extraordinary faculties of clear sight and strong sense, those branches of the art of healing, which were capable of extension without digging their foundations more deeply. Above all we may specify their contributions to symptomatology, which, by their endless supply of nice distinctions and acute observations, are a source of pleasure and instruction to modern students of that branch of learning."

The dawn of the allied sciences illumines each the other, and the physician who feels that he is becoming narrowed by the restrictions and exactions of his profession will find stimulus and breadth in meeting in the pages of this masterly work the very incarnation of the Greek Thinkers.

The Protozoa. By Gary N. Calkins, Ph.D., Instructor in Zoology, Columbia University. Columbia University Biological Series. VI. The Macmillan Company: New York.

The medical man of the present day is as well posted on microscopical plants, it might be said more so, than on the flowers of the field, and, if the recent developments of animal parasitology are to continue at the present rate, it will be incumbent on the student of the future to know his microscopical animals as well as those of more mighty stature.

This work of Dr. Calkins will prove a very important one to the student of the lowest forms of animal life, the protozoa, and is to be cordially commended to the medical man with tastes, biological and microscopical. It is strongest on the details of morphology and of cytology, less valuable from the taxonomic standpoint and of no value to the superficial student who wishes only to find the name of a species.

Considerable space is given to the discussion of the parasites of malaria and similar parasites, and this aspect of the work is very satisfactorily handled. It is to be remembered, however, that the work is not written particularly for the student of medicine, but for the

zoologist, nevertheless the practitioner who is interested in the primary problems of animal physiology can find much in it that will amply repay for the reading.

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. By CHARLES H. MAY, M.D., Instructor, Eye Department, in the College of Physicians and Surgeons, Medical Department of Columbia University. Second Edition. William Wood & Company, New York.

THIS work, the first edition of which found such a favorable reception, has been thoroughly revised in the second edition and improved by the additions and alterations. The chapter on ocular therapeutics has received special attention. Some colored plates have been added. One showing changes in the media as seen by oblique illumination and by the ophthalmoscope at a distance is especially valuable. Another plate, illustrating the various micro-organisms found in conjunctival, corneal and lacrimal diseases, is useful on account of the greater interest now taken in the bacteriology of the eye. We have the same reasons for commending this book now as when we reviewed the first edition.

A LABORATORY HAND-BOOK OF URINE ANALYSIS AND PHYSIOLOGICAL CHEMISTRY. By CHARLES G. L. WOLF B.H., M.D., Instructor in Physiological Chemistry, Cornell University Medical College, New York. Philadelphia and London: W. B. Saunders & Company.

THIS small manual differs in no essential manner from many others devoted to similar subjects, save that we do not consider it as good as some others which have been published recently. The part devoted to physiological chemistry is very meager. The urinary examination features, however, are very excellent and we believe the work accurate and reliable. It bears the impress of much personal experience. Some tables of diagnosis at the end of the work will be found very helpful, even if more didactic than modern medicine will permit.

THE PRACTICE OF OBSTETRICS. By American Authors. Edited by CHARLES JEWETT, M.D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, New York. Second Edition. Lea Brothers & Co., New York and Philadelphia.

UP TO DATE this is probably one of the most praiseworthy attempts at a tangible text-book on obstetrics that have been published in the last decade in the English language. Dr. Jewett has endeavored to collect the best ideas of American workers in the various departments of midwifery. The arrangement of the various sections of the book is most excellent and a decided improvement over the time-honored custom.

We regret that Cæsarian section is really neglected in the comparison with the chapter upon symphysiotomy to which entirely too much space is devoted. This procedure is nowadays scarcely in vogue, but is more or less warmly advocated in this publication.

The bacteriology and pathology of obstetrics is most ably and carefully set forth whenever any occasion arises for their explanations.

Unfortunately, it is impossible to get together such work and eliminate the personal element of the various contributors. And this is none the less evident in this case. However, we are indebted to Dr. Jewett for the small amount of this in his collaboration. The text is most interesting and the illustrations are clear and sufficient. The whole book is tastefully and neatly designed.

The following is a list of contributors: Charles Jewett, Elias Bartley, A. T. Bristow, A. H. Buckmaster, J. C. Cameron, H. D. Chapin, M. A. Crockett, R. L. Dickinson, J. C. Edgar, A. McL. Hamilton, F. Henrotin, W. P. Manton, C. D. Palmer, Jno. O. Polak, Hunter Robb, J. M. Van Cott, H. N. Vineberg, J. C. Webster, and J. Whitridge Williams.

A LABORATORY COURSE IN BACTERIOLOGY. For the Use of Medical, Agricultural and Industrial Students. By FREDERIC P. GORHAM, A.M., Associate Professor of Biology, Brown University. W. B. Saunders & Company, Philadelphia and London.

FOR the exact purposes for which it is meant this is a splendid little volume. Within a very small compass it discusses the fundamental principles of the life-history, growth-characters, and general features of bacteria. The modes of cultivation, the technic of staining and general classroom-laboratory mode of dealing with such problems is very clearly and succinctly set forth.

While this volume will be of secondary use to an advanced student, for a beginner, particularly in agricultural colleges, colleges of pharmacy, and in the smaller medical colleges, it will be found of good service and it is to be recommended cordially.

ATLAS AND EPITOME OF SPECIAL PATHOLOGIC HISTOLOGY. By Dr. HERMANN DURCK, Assistant in the Pathologic Institute, Munich. Edited by LUDVIG HEKTOEN, M.D., Professor of Pathology in Rush Medical College, Chicago. W. B. Saunders & Company, Philadelphia and London.

THIS is the second volume of the author's "Special Pathologic Histology" and includes the lesions found in the liver, the urinary organs, the sexual organs, the nervous system, the skin, the muscles, and the bones, thus completing the field of special pathology. The author purposes to issue a third volume on general histology.

We have already spoken of the high class character of Dr. Dürck's first volume. His second contribution sustains the reputation of the first and cannot fail to be of great service, not only to the student of medicine, but to the teacher. The illustrations are remarkably well done, the colored plates being very clear and comprehensive. For a work of the size, and for the price, it seems impossible that anything better could be produced.

THE ROENTGEN RAYS IN MEDICINE AND SURGERY AS AN AID TO DIAGNOSIS AND AS A THERAPEUTIC AGENT. Designed for the Use of Practitioners and Students. By FRANCIS H. WILLIAMS, M.D. (Harv.), Visiting Physician at the Boston City Hospital. The Macmillan Company, New York.

DR. WILLIAMS is already known as one of the best authorities in this country on the use of the Roentgen rays in medical and surgical diagnosis and in the other applications of this new electrical agent. The present volume firmly establishes his reputation as an expert in the matter of Roentgen-ray knowledge and, at the same time, serves to show how much this recent discovery means not only for diagnosis, but for therapeutics.

As might well be expected, the chapters on the use of the X-rays as a means of diagnosis in pulmonary tuberculosis are complete and very informing. The book is not loaded down with a series of illustrations without peculiar significance. Illustrations are introduced always with a definite purpose and serve to bring out very clearly the important points that Dr. Williams wishes to emphasize.

The chapters on the applications of the X-rays to the

diagnosis of fractures and dislocations, as well as the recognition of deformities and congenital malformation, contain a very thorough discussion of all the technical points connected with these subjects. The chapter on dental surgery shows how significant the Roentgen skiagrams may be in the recognition of unerupted teeth, of alveolar abscess, of fractures of roots and of fluid in the antrum. All of these details were practically beyond the positive diagnostic knowledge of the dental surgeon before the days of Roentgen's discovery.

The therapeutic uses of the X-rays and especially their action on bacteria in the tissues receive very thorough consideration. The favorable employment of the X-rays for the cure of lupus makes an especially interesting part of this chapter. The use of this electrical agent also in the treatment of external forms of cancer receives an up-to-date discussion that will prove especially informing to the general practitioner who is interested in knowing how far the meager, but very promising results that occasionally are reported are justified by the actual experience of a conservative and expert observer.

A Civilian War Hospital. Being an Account of the Work of the Portland Hospital, and of Experience of Wounds and Sickness in South Africa, 1900. By the Professional Staff. Anthony A. Bowlby, Senior Surgeon, Howard H. Tooth, Cuthbert Wallace, John E. Calverley and Senior Major Kilkelly. Longmans, Green & Co., New York.

The preface of this very interesting work tells us that the "Portland Hospital" was the first of the civilian hospitals to be equipped and sent to South Africa after the opening of the Boer war in October, 1899.

The character of the work is largely descriptive of the work of the hospital and of its equipment, and is a complete and very agreeable contribution to the broader aspects of modern warfare considered from its medical side, the economics of the running of the hospital being an especially practical and illuminating chapter.

As a contribution to medical and surgical science, the work is worthy of commendation. The joint authors have confined their attention to a few salient features, and wisely, we believe, to those of the greatest practical importance. Thus, the subjects of typhoid fever, the various forms of dysentery, diseases due to exposure, sunstroke and mental disturbances, are taken up in a serious and eminently satisfactory manner.

The surgical discussions take up the varying features depending on gunshot wounds and contribute much important data to the understanding of this absorbing topic. A series of appendices are very ingenious and cast many side lights on the economic features of such a project. To the military surgeon, engineer or hygienist such a work comes as a boon and to the outside profession as an opportunity.

A Text-Book of Physiological Chemistry. For Students of Medicine and Physicians. By Charles E. Simon, M.D., of Baltimore, Md. Lea Brothers & Co., New York and Philadelphia.

From the first glance of this work one is struck with the great amount of information that is contained in this work of really small compass; a further study shows that the author has made an extremely careful choice of the facts of physiological chemical science and has had the rarest of powers in being able to tell the facts in a way that makes them vivid and real.

Modern-day therapeutics, not to mention physiology, is so essentially bound up with chemical problems that the physician of the present day perforce needs to know all that is found in a work of this kind, and we know of none better and few as good for the purpose. We can heartily recommend it as authentic, concise, not too theoretical and yet judicious in its handling of mooted points.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

First Aid to the Injured and Sick. By Drs. F. J. Warwick and A. C. Tunstall. 12mo, 232 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

The Principles of Pathological Histology. By Drs. Harvey Gaylord and Ludwig Aschoff. Quarto, 359 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

The Surgical and Medical History of the Naval War between Japan and China during 1894-1895. By Baron Saneyoshi and S. Suzutsi. 8vo, 544 pages. Illustrated. Tokio.

Die Nervöse Schlaflosigkeit ihre Ursachen und ihre Behandlung. By Dr. Max Heim. 8vo, 59 pages. Friedrich Cohen, Bonn.

Essentials of Physiology. By Sidney Budgett. 8vo, 233 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

Memoirs and Letters of Sir James Paget. Edited by Stephen Paget, one of his sons. 8vo, 438 pages. Illustrated. Longmans, Green & Co., New York, London and Bombay.

The Mental Functions of the Brain. By Dr. Bernard Hollander. 8vo, 507 pages. Illustrated. G. P. Putnam's Sons, New York and London.

Practical Medicine. By Dr. F. Mortimer Lawrence. 8vo, 521 pages. Illustrated. Boericke & Tafel, Philadelphia.

A Practical Guide to the Administration of Anæsthetics. Dr. R. J. Probyn-Williams. 12mo, 211 pages. Illustrated. Longman, Green & Co., New York, London and Bombay.

Phototherapy. By Dr. Niels R. Finsen. Translated from German Edition by Dr. James H. Seguira. 8vo, 79 pages. Illustrated. Edwin Arnold, London.

An Experimental and Clinical Research into Certain Problems Relating to Surgical Operations. By Dr. G. W. Crile. 8vo, 200 pages. Illustrated. J. B. Lippincott Company, Philadelphia.

The Baby. His Care and Training. By Marianna Wheeler. 12mo, 188 pages. Illustrated. Harper & Brothers, New York and London.

Transactions of the Twenty-third Annual Meeting of the American Laryngological Association, Held at New Haven, Conn., 1901. Rooney & Otten Printing Co., New York.

The Four Epochs of Woman's Life. By Dr. Anna M. Gailbraith. 8vo, 200 pages. W. B. Saunders & Company, Philadelphia and London.

Gynecological Pathology. By Dr. Carl Abel. Edited by Dr. S. W. Bandler. 8vo, 237 pages. Illustrated. William Wood & Company, New York.

Transactions of the Association of American Physicians. Sixteenth Session. Vol. XVI.

Venereal Diseases. A Manual for Students and Practitioners. By Dr. James R. Hayden. Third Edition. 8vo, 301 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

A Manual of Clinical Laboratory Methods. By Dr. J. B. Nichols. 8vo, 301 pages. Illustrated. William Wood and Company, New York.

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ORIGINAL ARTICLES.

THE CAUSATION OF MULTIPLE NEURITIS.

BY M. ALLEN STARR, M.D., LL.D.,

OF NEW YORK;

PROFESSOR OF NERVOUS DISEASES, COLLEGE OF PHYSICIANS AND SURGEONS; MEDICAL DEPARTMENT OF COLUMBIA UNIVERSITY.

THE diagnosis of multiple neuritis no longer presents any difficulty, as the symptoms of the disease are now well known, and their various combinations, presenting paralytic, ataxic, neuralgic, and vasomotor types of the affection, according to the predominance of one set of symptoms over others, are everywhere recognized.

But as the clinical study of the disease has become more exact and complete it has become evident that a very large number of different causes may act to produce it. And in order to emphasize this fact it appears to be time to classify these causes more accurately, and to call attention to some which are unusual. This is not the first attempt at such a classification, for in 1887 in the Middleton Goldsmith Lectures cases were divided into toxic, infectious, epidemic, and due to uncertain causes. Gowers in the second edition of his text-book on Diseases of the Nervous System, 1892, classified the cases into (1) toxic, (2) toxemic, (3) endemic, (4) rheumatic, and (5) cachetic and senile, and Remak, in Nothnagel's Specielle Pathologie und Therapie, Vol. XI., has adopted a somewhat similar classification. If these classes be taken as a provisional basis and the various causes which are known be studied, we may finally reach a fairly satisfactory series of categories to which the cases may be assigned:

I. Toxic cases due to the action of a poison derived from without the body. (1) Metallic: arsenic, lead, mercury, copper, phosphorus, and silver. (2) Non-metallic: alcohol, carbonic oxide gas, bisulphide of carbon, sulphonal and trional, the coal-tar products, and nitrobenzol.

1. In discussing these toxic agents I wish to call your attention to some which have not been commonly recognized, or rather to some unexpected means by which they may get into the system.

a. Arsenic.—It has long been known that arsenic can produce neuritis. Not infrequently persons who fail in attempts at suicide by taking arsenic suffer for a long time from the neuritis which develops after the attempt. Occasionally children who are being treated for chorea by arsenic show unusual susceptibility to the drug and develop neuritis. Neuritis may also be due to the inhalation of arsenic which is given off from wall-papers and furniture-covering, or from artificial flowers containing arsenical dye-stuffs. One of the most severe cases I have seen developed in a woman who, in order to avoid miscarriage, was confined to her bed during the first six months of pregnancy. To make her room attractive a new green paper and green cretonne furniture were put in which were subsequently found to be loaded with arsenic. In the third month her continued vomiting which had been ascribed to the pregnancy was followed by a rapidly-developing, painful paralysis in legs and forearms, the thighs and arms and body being exempt. A general brown pigmentation of the skin also appeared which was the symptom suggestive of the arsenical cause of her neuritis—a suggestion confirmed by the discovery of arsenic in the urine. As she had never left her room and had not been given during her illness any arsenic medicinally, there could be no doubt as to the fact that the arsenic had been inhaled from particles in the air.

It is not to be forgotten that many toilet powders contain arsenic and they may thus easily cause neuritis. But the most interesting fact regarding the possibility of arsenical poisoning was elicited about two years ago in the epidemic of arsenical poisoning from the use of beer in England.[1] It was noticed in November and December, 1899, in Manchester, Salford, Liverpool and the adjacent towns that a very unusual number of cases of neuritis were applying for relief to the hospitals. While these cases were at first regarded as alcoholic, the peculiar pigmentation of the skin and the numerous trophic symptoms, such as changes in the nails, which became ridged, thick, and brittle; erythema, acne, eczematous, papillary and herpetic eruptions, and thickening of the skin over the knuckles and on the palms and soles, with desquamation, soon suggested arsenic as a cause. Investigation revealed the fact that all the patients had drank freely of beer from a few breweries, and certain of these beers were found to contain arsenic in the proportion of from 0.28 to 0.14 of a grain of arsenious acid to the gallon. Thus, a man drinking four quarts a day would get the equivalent of 30 minims of liquor arsenicalis. Chemical examination proved that the arsenic was derived from the glucose or invert sugar used in brewing, and not from any other of the constituents of the beer. The glucose contained four parts of arsenic to 10,000. Glucose, as is well known, is derived from corn or other kinds of starch by the action of sulphuric acid. Sulphuric acid is now manufactured from arsenical pyrites, and such acid is rarely free from arsenic. Hence the source of the arsenic in the beer. Prompt action by the legal authorities in England caused the destruction of thousands of gallons of this arsenical beer, and the epidemic ceased. The glu-

[1] British Medical Journal, Dec., 1899, and Oct., 1901.

cose manufacturers were alarmed at the danger and the American Glucose Company stopped entirely the use of sulphuric acid in the preparation of glucose, to avoid the danger. But the fact remains that unless care is taken in the manufacture of glucose and its use in beer such a neuritis may develop anywhere and at any time from similar cause. Last winter I saw at St. Vincent's Hospital two cases of supposedly alcoholic neuritis from beer-drinking (in one of which a bilateral facial paralysis occurred as an interesting symptom) attended by the characteristic arsenical pigmentation; and I am convinced that once this causation is suspected many cases will be observed. It may be well to state that the pigmentation is a dark brown in color which makes one think at first that the patient is an octoroon or a mulatto, but later may suggest Addison's disease. The pigment appears first on those parts of the body normally pigmented, the axillæ and groins and the nipples. It soon appears on the eyelids, on the abdomen and thorax and finally on the extensor surfaces of the arms and legs. The pigment is diffuse, but here and there little islets of normal skin give a mottled appearance to the surface. The mucous membranes are never pigmented, hence the condition need not be mistaken for Addison's disease. I saw last winter with Dr. A. H. Smith at the Presbyterian Hospital a man suffering from a most extreme type of neuritis, attended by the rare complication of paralysis of the diaphragm, in whom this pigmentation suggested arsenic as the cause of the disease. The urine was found to contain arsenic. This patient was attacked by paralysis in the mountains of Brazil, where he was working as an engineer. He had suffered from severe malaria and, in the absence of other causes, it was supposed that his malaria was the cause of the neuritis. He had drank a bottle of English beer daily for some months. He had taken large doses of quinine and some arsenic. It is still a matter of doubt which of these three causes produced his neuritis, for as we shall soon see the disease often develops after malarial fevers, and it is not impossible that large doses of quinine long continued may cause general neuritis, as it is known to cause atrophy of the acoustic nerve.

Sulphuric acid is used in so many of the arts and manufactures that it would be well for those who practise among such workers to be on the lookout for chronic arsenical poisoning. Arsenic is so commonly found in copper, and copper is now being used so widely in electrical construction, that it is not strange that workers in copper are often the subjects of arsenical poisoning. The presence of $^1/_{200}$ of 1 per cent. of arsenic in copper renders the copper useless for many electric purposes. The arsenic is extracted by heat, going off in fumes. In factories where these fumes have been conducted to a height of 250 feet by tall chimneys, the workmen about the copper works constantly present arsenic poisoning, the particles dropping from the gases, being scattered all over the adjacent buildings, getting into the air and so being inhaled. I am told that these workmen are often attacked by paralysis, from which they gradually recover. It seems likely that this paralysis is really an arsenical multiple neuritis.

b. Lead.—The frequency of lead-palsy, which is always a form of multiple neuritis, and the widespread knowledge of its origin among painters, plumbers, typesetters and workers in lead toys makes it unnecessary to devote time to its consideration. It may not be so generally known that laborers who produce china, earthenware glazes, and fritted glass are equally liable to lead-poisoning. In the midland counties of England, in Limoges, France, and in Dresden and Prague, neuritis from this cause among these workmen is very common.[1] It would be well for those who practise in Trenton, N. J., Cincinnati, and Denver to watch for such cases in the factories where similar products are turned out.[2] It seems to be well admitted that persons addicted to alcohol are more liable to lead neuritis than are the temperate. The possibility of a contamination of water by lead from lead pipes is never to be forgotten. Old pipes become lined with soluble salts of lead which may render the water which is allowed to stand in the pipes quite poisonous. Thus, cases are reported of servants who have drank the water first drawn from a faucet in the morning, without letting it run a while, and have thus been poisoned. It is interesting to know that horses are subject to lead-palsy.

c. Copper.—Allusion has been made to the occurrence of arsenical neuritis in those who are busied in extracting arsenic from copper. But copper itself may be the cause of neuritis. Suckling has called attention to a form of multiple neuritis developing in brass-workers in England, and in this country Walton and Carter have confirmed his observation. This fact requires emphasis for such cases will probably be found if looked for in those localities where copper is burned or worked.

d. Phosphorus.—Henschen has seen cases of both mild and severe types of multiple neuritis following poisoning by phosphorus. It is not unlikely that this may be the origin of many nervous symptoms to which those who work in match factories are peculiarly liable. But further investigation is needed to establish the existence of neuritis.

e. Mercury.—The various types of paralysis attended by tremor due to inhalation of fumes of mercury are now rarely seen, though formerly when looking-glass was manufactured by the

[1] In a report of the effects of lead upon lead-workers in the Staffordshire potteries, Dr. Shufflebotham of Newcastle-on-Tyne found that but few workmen were affected (Lancet, Oct. 28, 1901); but in the Inspectors' report (Lancet, Oct. 12,) it appears that, of 8,637 individuals employed in earthenware and china industries in 1900, 323 suffered from lead-poisoning, i.e., about 4 per cent. the greater part of whom were poisoned by inhaling dust laden with lead.

[2] It is interesting to know that the lead in the glaze which lines so many agate pots and dishes used in cooking may be dissolved out by the acids and fats in food and thus may cause lead-poisoning. Some such cases have recently been reported in England.

older methods they were very common.[1] The lesion in such cases was a multiple neuritis. I have seen several patients suffering in this manner. Fortunately, the newer method of precipitating the mercury on the glass by electrolysis does not expose the workmen to the fumes. I have never seen the medicinal use of mercury cause a multiple neuritis.

f. Silver.—The only case of neuritis ascribed to silver-poisoning is recorded by Gowers. His patient had taken silver pills for years for cancer from which he subsequently died; he had the blue discoloration caused only by silver and the silver was the only assignable cause for an undoubted case of paralysis of the type of lead-palsy.

2. Poisoning by non-metallic substances is much more common than by those already considered.

a. Alcohol.—The vast majority of cases of multiple neuritis seen in private and in hospital practice are traceable to alcoholic excesses. It was formerly supposed that whisky, brandy, gin and rum and the liqueurs were the only forms of drink strong enough in alcohol to cause neuritis. They are certainly the usual cause of the disease. But further observation has shown that in some persons susceptible to alcohol, red and white wine, or even ale and beer may produce the disease. It seems that this susceptibility may be manifest not as a mental one merely, but also as an inherent weakness in the nerves. We recognize that undue elation, talkativeness, egotism, or combativeness may appear in certain persons under small amounts of alcohol which fail to affect other individuals at all. Is it not probable that persons may show similar variability of effect of the drug in the nerves as well as in the brain-cells? I have been surprised to find how free some are from alcoholic nervous symptoms after long and steady and copious habitual drinking. I have also been surprised to find what small amounts of liquor or even beer will in others cause serious neuritis. I have seen a case of severe multiple neuritis in a child of three years whose mother gave her a "sup of beer" once a day at dinner. It is never to be forgotten that many substances contain alcohol and if taken may cause neuritis which might not be suspected. One undoubted case of alcoholic neuritis in a man who prided himself on his temperance record was traced to a patent remedy which he had long taken almost daily for so-called dyspepsia. He had found it necessary gradually to increase the dose and he was taking about eight ounces daily of thsi nostrum. Analysis showed it to contain 70 per cent. of pure alcohol. In the case of a woman whose symptoms were typical, and whose indignation at my questions regarding concealed drinking was shared by all her family, careful observation elicited the fact that she was sipping cologne, and consumed about six ounces a day. It is to be remembered that the inhalation of alcohol is more rapid in its effects and equally deleterious as its absorption by the stomach Those who work in drug factories in all manufactures where alcohol is used and where its fumes may be inhaled are liable to neuritis. For it is the constant absorption of small amounts, keeping the system continually under the influence, which is more likely to cause neuritis than are occasional large doses.

Males are actually the victims more often than females. Thus, of 250 cases which I have seen or collected, 89 only were in female. But when the far greater prevalence of drinking among men is considered it is evident that the disease is relatively far more frequent among women. It is likely that a sedentary habit predisposes to it and hence active workers, male or female, though taking an equally large amount of liquor as does the luxurious lazy drinker, escape. I think that neuritis is more commonly seen among the higher classes and in those whose nervous organization is more highly developed than in the lower or coarser types.

I would also call attention to the existence of a chronic alcoholic multiple neuritis in mild drinkers, characterized by numb extremities, occasional neuralgia, a general enfeeblement of the muscles, and edema of the feet, which may persist for years and never go on to actual paralysis or ataxia. These cases have not been recognized or mentioned in the books.

b. Coal Gas.—When inhaled coal gas may cause a severe type of sensory neuritis. Two of the most obstinate cases I have seen were in patients who barely survived the experience of sleeping in rooms where the gas was turned on. It is not generally known that natural gas may produce the same effect. In the case of a man from Peru, Ind., three successive attacks of the disease were definitely traced in the absence of all other causes to his exposure to inhalation of natural gas both in his house and in his office. And I am told that neuritis has increased in Pittsburg during the last few years since natural gas has been extensively used as a fuel. There is little effort to save this gas and complete combustion is not always obtained. Hence it gets into the air of badly-ventilated rooms and is inhaled. I have seen several cases from cities in the Middle States, where natural gas is freely used, which have been there considered neurasthenic but which were really cases of chronic multiple neuritis, and possibly due to this cause.

c. Sulphide of Carbon.—This substance is present in rubber and multiple neuritis developing in workmen in rubber factories has been traced directly to it as a cause. The fumes from heated rubber or the dust containing particles of rubber are inhaled or get into the mouth and nose and are then swallowed, causing a chronic

[1] In the report of the Chief Inspector of Factories and Workshops in Great Britain for 1900 (Lancet, Sept. 28, Oct. 12 and 28, 1901) it is stated that few cases of mercurial poisoning were discovered. These were chiefly among manufacturing chemists who produced calomel, corrosive sublimate and red oxide, all of which are made by volatilizing the metal. Makers of thermometers and of electrical meters were also affected. In the making of hats nitrate of mercury is used for the preparation of the fur and workers here suffered.

poisoning. The symptoms are at first those of general anemia and disturbance of digestion, headache, inability to fix the attention or to remember, and many functional nervous symptoms suggestive of hysteria follow. Finally symptoms of multiple neuritis either of the paralytic or of the ataxic types develop, causing long and serious illness. Such cases have been rather widely observed abroad, but have not been recorded in this country. They are most completely described by Laudenheimer.[1] Inasmuch as our rubber industry is becoming very extensive, since the introduction of rubber tires, it may be worth while for those who come in contact with employees in the rubber factories to be on the lookout for these cases.

d. The Coal-Tar Products.—Antipyrin, acetanilid, sulphonal and trional, chloretone, and other coal-tar products are so widely used as medicinal agents that much interest has been awakened by recent statements that they are capable of causing multiple neuritis. I think we have all seen nervous symptoms caused by overdosage of these drugs. The cardiac weakness and cyanosis are probably due to paralysis of the vagus nerve. The marked relief of pain is often attended by numbness of the extremities and feelings of weakness. It has been affirmed that the long-continued use of antipyrin, acetanilid and phenacetin has been the cause of multiple neuritis. I have not seen such cases; but Remak, who has reported one case, is a most accurate observer. I have seen a case of acute sulphonal-poisoning, in which the patient took 120 grains of the drug within three hours. She slept two days, being during this time very cyanotic, with weak, rapid pulse, 120, and slow, shallow respiration. For three weeks after this she suffered from paresthesia of the extremities and from weakness and ataxia of the hands and legs, with extreme tenderness along the distal parts of the nerves, symptoms easily referable to a mild neuritis, and not unlike those seen after alcoholic or coal-gas poisoning. Dr. Stuart Hart has recently reported[2] a case of trional habit followed by multiple neuritis. As I saw this patient, I can confirm his diagnosis; and, in view of the probable exclusion of other causes and of the fact that he has been able to find other cases similar in kind in the literature, I think we must admit that trional if long taken in large dose may produce neuritis.

Ross called attention to cases of multiple neuritis occurring among miners who use roburite (dinitrobenzol) and also to cases occurring in factory workers who use the anilin dyes and oils. We all know of the relative action of methylene blue upon the nerves in the laboratory and of the recent attempts—not very successful—to introduce this dye into the Pharmacopœia, as a remedy for neuralgia. It is not unlikely that Ross' observation will be confirmed if the dyes are known to be a cause of neuritis.

[1] Die Schwefelkohlenstoff-vergiftungen der Gummi arbeiter. Leipzig, 1899; also E. Koster, Arch. für Psych., xxxiii, 3.
[2] American Jour. of the Med. Sci., April, 1901.

I fear that I have taken too much time in the consideration of these toxic cases of neuritis. But it has seemed to me necessary, for I wish to emphasize our duty as physicians to protect the workmen who are ignorant of these dangers attendant upon their employment. In many industries it has been found needful to insure healthful surroundings by legal enactment. The restrictions have resulted in the banishment of many forms of chronic poisoning. If it is necessary to call attention to further danger to the working class it is surely our duty to realize these dangers. Hence, as new perils are discovered, we should investigate their effects and if needed devise appropriate remedies.

II. We turn now to the second class of cases of multiple neuritis, viz., toxemia from infection. In this class are included all cases due to the development and action in the organism of some bacterial poison either of external or of internal origin. Multiple neuritis is known to occur as an accompaniment of, or as a sequel to, diphtheria, severe pharyngitis, the grippe, typhoid, typhus, malarial and scarlet fevers, measles, mumps, whooping-cough and smallpox, pneumonia, erysipelas, gonorrhea, puerperal fever, septicemia of any origin. We may include in this class the epidemic form known as beri-beri and also leprous neuritis. The literature upon the subject of these various cases of multiple neuritis has increased enormously within the past ten years. In the volume of Nothnagel's Specielle Pathologie und Therapie, prepared by Remak on neuritis, several hundred articles are cited. There can be no doubt whatever that the majority of cases of paralysis, of severe painful affections, and of vasomotor disturbances which have been recognized as complications of these infectious diseases are due to multiple neuritis. They have all the characteristics of that affection and like it they usually terminate in recovery in the course of time. Many cases are limited in extent to one or two nerves. Others are widespread, involving many nerves, but all can be traced to some toxic agent of infectious origin. In some cases the neuritis occurs during the course of the infectious disease. In the majority of cases it develops later as a sequel, due in all probability either to a toxin left in the blood, or to the fact that the nerves resist for a long time the action of a toxin which finally overcomes them.

I cannot do more than enumerate these causes, but in passing I wish to remark that since the use of antitoxin in diphtheria the number of cases of diphtheritic paralysis is decidedly less. I wish to emphasize the frequency of neuritis following grippe. I have observed all the various types, the paralytic, the painful neuralgic, the pseudo-ataxic and the vasomotor type, and I find recovery in these cases to be very slow. I have thought that many cases following typhoid might be explained as alcoholic in origin, since stimulants are used very freely and have been particularly needed in many cases which subsequently showed neuritis. The ordinary forms of malaria as seen here rarely

are followed by multiple neuritis, but the severer types seen in the tropics, dengue fever especially, are liable to cause neuritis. I have already seen two bad cases sent home from the Philippine Islands. Foreign observers have seen cases following the children's fevers named, but they are certainly rare in this country. Sufficient attention has not, however, been paid to the cases traceable to septic conditions and to gonorrhœ A long-continued suppuration in a tooth, in the ear, in the nasal cavity, or any collection of pus, or gonorrhea, and the condition of the blood which leads to a series of boils or carbuncles are certainly competent causes of multiple neuritis. It is not well to assign the case to the category of unknown causes until these factors are wholly excluded.

It has seemed very probable to several authors that some of the cases of neuritis hitherto classed among cases of unknown origin are really due to an infectious agent. These cases show many characteristics of an acute infectious disease. They begin with chill and fever, a temperature of 103° F. having been often recorded, and with all the accompanying symptoms of an acute febrile movement, viz., malaise, gastro-intestinal irritation, headache, profuse sweating, rapid pulse, catarrhal states of the pharynx, larynx and bronchi, dark heavy urine, and a swelling of the spleen. The latter symptom has been considered by Strumpell, Caspari and J. J. Putnam as proof positive of an infectious origin of the disease. It should be looked for in any case. The pain in the joints which attends these cases has led to their being considered rheumatic, but this I think is erroneous.

Beri-beri or kakke is a form of neuritis of which we are likely to see many cases, especially on our Western coast, since our acquisition of the Philippine Islands, in which it is always endemic and often epidemic. No positive proof has yet been offered of its origin from a micro-organism, though several investigators claim to have discovered a characteristic bacillus. Many believe it to be due to a diet in which rice predominates, and it is a fact that the Japanese Navy has been quite free from the disease since its diet-sheet has been extended and made to include meat, green vegetables, and fruit. But this diet theory is discarded by Scheube,[1] who adheres to the infectious theory of the disease.

III. The third class of causes of multiple neuritis is allied to the second class, for while not truly toxemic or infectious it is a class which Remak terms dyscrasic. There are certain discases the presence of which in the system predisposes it to nervous affections and among these affections it is now necessary to include multiple neuritis. Some of these diseases are in themselves of bacterial origin. Thus, tuberculosis is surely and rheumatism possibly so. Others are due to disordered states of the blood consequent upon some inactivity in other organs. Thus, diabetes, gout, and rheumatism are conditions which notably predispose to neuritis. Carcinoma, arteriosclerosis, and the senile condition are also known to incline to the development of neuritis. Hence, we can form a class of cases of neuritis which is to be traced to some other disease present in the body. In tuberculous patients the multiple neuritis is not due to the invasion of the nerves by the bacillus, for most careful postmortem investigation has never revealed its presence in the nerve-sheaths; but the lowered vitality of the patient seems to impair the nutrition of the neurons, which suffer first in their extreme peripheral parts so far removed from the nutrient center in the cell-body.

In rheumatic patients a coincidence of acute articular rheumatism and acute multiple neuritis is too common to be an accident and in either condition the other is extremely liable to occur. Hence, we have to admit a rheumatic variety. The Germans speak of the form of neuritis due to exposure to cold as "rheumatic." That such exposure is a sufficient cause is admitted. One of the worst cases I have seen developed in a man who, while asleep under a tree, was suddenly drenched by a shower and severely chilled. The next day he was paralyzed and had all the symptoms of multiple neuritis for several months. The condition produced by a draft of cold air or by exposure to cold is one which causes either immediate changes in the blood or peculiar susceptibility in the body-cells to the action of otherwise innocuous agents in the blood or to extraneous poisons of bacterial or of some other origin, and this must be admitted as a cause not only of neuralgia, of local neuritis like facial palsy, but also of multiple neuritis.

In diabetic patients localized mononeuritis is a very common occurrence. All authorities have emphasized this fact. But, while neuralgia, ulnar neuritis, crural and sciatic neuritis, etc., are frequently observed, general multiple neuritis is seldom seen. Leyden, Raymond, Buzzard and Charcot have described the only cases not open to criticism. I have never seen such a case.

In gouty patients also mononeuritis is far more common than multiple neuritis; in fact, but a few cases of the latter have been recorded. I have seen one case which deserves to be cited because of its unusual features.

The disease began with a severe itching and burning sensation about the toenails and upon the dorsum of the right foot, which soon developed in the left foot also. This itching and burning sensation soon extended up both legs to the knee, but was not at first attended by any change in the appearance of the skin or by actual anesthesia. After several remissions the symptoms became more intense and the burning and itching were accompanied by the appearance of a crop of minute vesicles. The feet then became swollen, the skin became glossy, red and extremely tender to the slightest touch and the sensation was one of great pain throughout both lower ex-

[1] Scheube. Beri-beri, Jena, 1894; and Die Krankheiten der Warmen Lander. 1899.

tremities. Any moist dressing upon the surface intensified the pain, but dry dressings or oily applications seemed to give relief. Large serous blebs formed upon the soles of the feet and about the toes, and there were considerable eczematous exudation and a scaly appearance of the skin of the entire legs. After this condition had lasted for three months similar itching and burning began in the hands about the fingers with very marked deep-seated paresthesia. Fine vesicular pin-point elevations in the skin of the hands also appeared, but these did not go on to the formation of blebs as in the feet. After two months the skin of the legs had become thickened, cracked, and shiny with crusts all over the surface, and when these had peeled off the surface was red and very sensitive to light pressure. The nails of the toes were thickened, rough, striated and black. It was said that they had not grown at all during six months. Tactile sensibility was diminished over both feet and both legs, but any touch was attended by great pain. The muscles of the feet and legs became extremely atrophied and were almost entirely paralyzed; no electrical examination could be made on account of the extreme sensitiveness. At this time sciatica as high as the buttocks was complained of. The knee-jerks, at first exaggerated, were subsequently lost.

When I saw the patient, a woman of about fifty years of age, with Dr. W. H. Draper, seven months after the onset, she was unable to stand or to bear her feet upon the floor, but the paralysis had subsided and she could move her ankles, but could not move her toes. There was very marked tenderness to touch over both legs and upon both feet, and the tenderness upon the nerves on the soles of the feet was extreme. The skin of the feet was dry, scaly and cracked. The nails were badly discolored, ridged and dark and rough, excepting near the matrix, where a new growth of normal nail, about one-half inch in depth, had begun. Any covering applied to the feet caused intense burning and itching, so that she kept the feet entirely uncovered both day and night. There was nothing in the way of local treatment that relieved this itching and burning, though every form of local application had been tried. The ball of the foot was red, the rest of the foot white, but during an attack of pain the feet became scarlet, or sometimes became very much more pallid than usual. It was evident that the condition in the feet was that of erythromelalgia.

A similar burning sensation and itching were felt in the hands from time to time, but there was no apparent malnutrition of the skin.

The patient came of a very gouty family and had many indications of the presence of gout, and all these symptoms gradually subsided in the course of a year, under treatment directed exclusively to the gouty state, namely, dietetic treatment and alkalies given freely. The coal-tar products appeared to give some little relief to the local symptoms. I have seen the patient several times in the past five years and there has been no return of the affection.

I have seen several other cases that are quite similar to this in their symptoms and course and have no doubt that they can be classed together as gouty neuritis.

In carcinomatous patients, as in the tuberculous, any form of neuritis is to be traced to the general malnutrition. In old people, especially in those who are the subjects of arterial atheroma and sclerosis, general neuritis is responsible for many symptoms of feebleness and paralysis. Some of the cases described as senile paraplegia are undoubtedly cases of multiple neuritis. And the mere establishment of the cause should not in these cases lead to too serious a prognosis. I have watched a case this summer in the practice of Dr. R. B. Kimball, in which a gradual recovery from a state of total paralysis of both arms and both legs has ensued, although the patient was seventy-six years old, was the victim of a chronic arthritis deformans, and had extensive gangrene of one leg as a complication. It was interesting to observe that the rigid deformities due to the arthritis were relaxed during the course of the paralysis, but returned as that disease passed off. Oppenheim and Schlesinger have also seen gangrene as a complication of senile neuritis and regard it as very serious in old persons. In this case skin-grafting proved successful in spite of a very deep slough as large as one's hand.

The question of the existence of a syphilitic multiple neuritis has been raised and was recently discussed before the New York Neurological Society. The members agreed that they had never seen such a case and it is probable that syphilis does not enter as a causative factor in general multiple neuritis, though it may be the cause of local gummy swellings in the nerve-trunks. Cestan[1] has recently reported two cases and has found five others in the literature.

IV. Lastly we have to admit in many cases of multiple neuritis that no cause can be discovered. These are still termed "idiopathic" cases, but as the knowledge of the causes of the disease increases this class diminishes. I have already suggested that some cases formerly considered as belonging to this class are really infectious in nature. I would suggest that some still so considered are really due to auto-intoxication from the products of gastro-intestinal fermentation. Such a toxemia is now admitted as a cause of many serious nervous symptoms, of chronic recurrent headaches, of many neuralgias, of convulsions. May it be a cause of neuritis? There are cases of an acute general paralysis sudden in onset, transient in character, rapid in recovery, presenting the peripheral character of neuritis lacking evidence of central lesion. Such cases observed by Westphal, by Holt, by Mitchell, are too well authenticated to be disregarded. They point to a sudden suspension of function of the peripheral nerves under the form of intoxication.

[1] Nouv. Icon. photo. de la Salpêtrière, xiii, p. 153.

They do not always go on to neuritis, but they may so terminate. Possibly these cases, like cases of migraine, may be due to some poison in the blood produced within the body. If so, these cases must be transferred to the toxemic class. I do not think we can pay too great attention to searching for the cause in these cases. Yet that some baffle an inquiry is illustrated by the following case:

A. A. B., born in 1877, a young man of healthy parentage and of fine general physique; without any history of specific disease or of any bad habits, was sent into the Presbyterian Hospital on October 7, 1897, being then in a state of general motor and sensory paralysis involving all the limbs.

His first illness of any severity was a similar attack of general paralysis which occurred in 1892. In the summer of that year, while living a healthy out-of-door life, not drinking at all, and taking no drugs, he noticed a clumsiness of his hands, a tendency to drop things, and a feeling of unusual fatigue in his legs, which was soon followed by inability to stand on his toes. These symptoms were not attended by pain nor by any general constitutional disturbance. They increased, however, very rapidly to the point of absolute paralysis, and in three weeks after they were first noticed he was unable to use his hands to feed himself, or to walk or to stand alone. His control of his bladder and rectum remained normal, and except for his muscular weakness and a sensation of numbness in his limbs he felt well. He was sent for treatment to a sanitarium, where he remained for three months, but as he did not improve he was then, in October, 1892, taken to St. Luke's Hospital, where he was examined by the late Dr. Walter Vought and by me. At that time he was found to have a total paralysis of all the muscles below the knees and elbows, with considerable atrophy in these muscles, and a loss of faradic excitability. The reflexes were absent in the paralyzed muscles. The muscles of the upper part of the limbs were also weak, but voluntary motion was not suspended. Such motion, however, as was possible was ataxic and uncertain. The trunk muscles had not escaped, and he was unable to turn in bed or to sit up. There were partial wrist-drop, complete foot-drop, some tenderness along the muscles of the calves and of the forearms, but no sensory disturbance of any kind.

Under general tonic treatment with massage and electricity to the paralyzed muscles, he soon began to improve, and, after a month, was able to go home, though he still could not stand alone or feed himself. His recovery was, however, continuous and rapid, and in June, 1893, he reported that he had regained complete power in all his muscles, and was quite well except for some shaking of his hands (ataxia?) at times.

In August, 1894, he was readmitted to St. Luke's Hospital in about the same condition in which he had been on his first admission. The second attack had begun in July, and had gone on rapidly to almost total paralysis, again without pain or sensory disturbance save some numbness, and without any affection of the bladder or rectum. He was seen by Dr. Peterson in August, 1894, and by me in September, and we agreed upon the diagnosis of a multiple neuritis, but were unable to ascertain any cause. His progress to recovery was slow but continuous. In November he was able to leave the hospital, and in April, 1895, he reported himself as having regained complete power in all his muscles, though he complained of some formication and tremor in the right arm and hand. This gradually passed off.

On September 20, 1897, he presented himself at my office and complained of some numbness of his fingers and toes, of an awkwardness in fine motions, and a feeling of weakness in the hands and fatigue on walking far. I found a slight anesthesia to touch, cold and heat and pain in the fingers, a decided weakness of the interossei of the hands, but no other symptoms of disease, careful examination of every organ being negative, and his appearance being that of a young athlete well developed in every respect. We were both, however, alarmed at the prospect of a return of his paralysis, and he consented to a life of quiet and of care in diet, with the use of strong nerve tonics and of cod-liver oil. But these precautions were of no avail, and in the course of a month he had developed an absolutely total paralysis of all the muscles of the extremities with rapid atrophy and loss of faradic reaction. The trunk muscles and muscles of the head and neck were also invaded. He could not sit up or turn in bed. His external ocular muscles were weak, so that he had a slight internal strabismus, and saw double. His speech was noticeably thick and pronunciation was imperfect, and soon after his admission to the hospital deglutition became affected, so that he could swallow only with great difficulty. Then his respiration became suddenly unnatural, and it was found that there was no spontaneous action of the diaphragm. For two weeks his respiratory movements were wholly of the type seen in volitional labored breathing, and during this time he slept little, as respiration became uncertain and irregular when the conscious effort ceased. His pulse at this time was extremely rapid, but never intermittent or irregular. His bladder and rectum were always under perfect control. His mind was always clear and his courage good. Preparation was made to maintain artificial respiration, if needed, but this was never necessary. After two weeks the respiratory motions seemed gradually to become more natural, the diaphragm began to work again at night during sleep, and after a month its action at all times was natural. During the following month, after the improvement set in, it advanced rapidly in all the muscles, the muscles of the trunk and near the trunk regaining their power sooner than those of the distal parts of the extremities. It seemed safe to allow him to go

home November 25th, and he reported a steady improvement. At the height of his paralysis there was an anesthesia to touch, temperature and pain as high as his elbows and knees, but not in his face or on his trunk. The special senses were normal. He has had no recurence during the past four years, and is at present in perfect health.

I have not found recorded many cases of recurrent attacks of neuritis. Leran, however, has published the history of one patient who had suffered from nine attacks in successive years, no cause being found.

This finishes the list of causes thus far determined. It must, however, be added that in some cases of neuritis a double causation may be ascertained. Thus, it is well known that alcoholic subjects are more liable to arsenic- and lead-poisoning than non-alcoholics. It has been observed that alcoholic neuritis often develops in an individual subsequently to an attack of the grippe, typhoid or other infectious diseases, though the amount of alcohol taken is not increased. Hence, it is not wholly sufficient to ascertain one cause in a patient, and we should not be satisfied that we have determined the exact etiology of the affection in any patient until we have elicited every possible factor in the case.

CRIMINAL ABORTION.

BY E. STUVER, M.SC., M.D., PH.D.,
OF FORT COLLINS, COLO.:
MEMBER INTERNATIONAL MEDICAL CONGRESS (BERLIN); FELLOW AMERICAN ACADEMY OF MEDICINE.

I believe that the distinction between the terms abortion and miscarriage should be made on moral and ethical grounds rather than be determined by the length of time pregnancy has continued, as has been heretofore done. I would, therefore, define abortion as the deliberate and intentional interruption of pregnancy before viability of the fœtus has been attained.

Every physician in active general practice will, I believe, bear me out in the statement that this dread crime is widespread among all nations and people; that it has invaded all ranks and classes of society from the highest to the lowest; that it is not confined to the criminal classes alone, but has penetrated the most exclusive abodes of luxury, splendor and fashion, and has even been admitted to the homes of those active in church and religious work, and supposedly surrounded by a halo of sanctity. My remarks shall have no reference whatever to those rare cases in which, in order to save the life of the mother, it is necessary to sacrifice the child, but I do desire most emphatically to insist that in all cases in which such a condition exists the attending physician call to his aid and assistance one or more competent physicians in good standing, not only for his own protection, but in order to impress upon the family and the community the seriousness and gravity of such an undertaking.

In order to appreciate the far-reaching consequences of this widespread crime, let us consider some of its physical, mental and moral effects on the individual and upon the race.

When one considers the lives destroyed by the abortionist the life losses of the Spanish-American and Boer wars pale into insignificance; but such evils are of comparatively slight importance beside the obtunding of the moral nature, the turpitude and race degeneracy consequent on this most insidious and degrading of all crimes. These truths have long been appreciated by the conscientious and thinking members of our profession. The late lamented and brilliant Dr. J. T. Whittaker, in an address (*Journal of the American Medical Association*, April 11, 1896, p. 700), spoke as follows: "Physical corruption is never so bad as is moral corruption. All history shows that though a plague may devastate, it is immorality alone that can destroy a nation. . . . Rome fell not because of the plagues, not because of the Goths and Vandals, but because of the failure in the crop of Roman children."

If failure in the crop of children is a sign of national decay and degradation, then surely the so-called progressive civilized nations are on the down grade. According to the latest census reports, there has been a decided falling off in the birth-rate of the principal European countries, not only in France, of which decrease we have heard so much, but also in England, Germany, and among other leading nations. The same thing is true to an alarming extent of our own country, especially in the American element or the old native stock: and, were it not for the fact that there is a constant influx of foreigners and a high birth-rate among these people, our rapid increase of population would suddenly cease.

As to how great an influence abortion has exerted in lowering the birth-rate in our own and in other countries, none can speak definitely, but when we consider the number of young lives sacrificed every year and the immense amount of disease and sterility following this infamous practice, I believe I am justified in claiming that abortion is a prominent factor in the retardation of national growth and an insidious cause sapping our physical, mental and moral strength as a nation. War, by destroying the young, strong, vigorous and robust, and by allowing the old, weak and diseased to propagate their kind, lowers the strength and vitality of a nation. This truth is vividly shown by the loss in stature and in the physical degeneracy of the French people since the Napoleonic wars, and to a less marked extent in our own country since the late Civil War. Abortion, by killing, crippling and sterilizing many of the strong and vigorous young women, has an effect analogous to that of war, and necessarily produces more or less national and race degeneracy.

The truth of Pope's forceful lines,

> "Vice is a monster of so frightful mien
> As to be hated needs but to be seen,
> But seen too oft, familiar with her face,
> We first endure, then pity, then embrace"—

could nowhere find a stronger confirmation than in connection with the degrading effects of criminal abortion on the moral nature. Many women, who in other respects are esteemed for their beautiful traits of character, their graces both of mind and of body, who are the bulwarks of church and society, who are actively engaged in philanthropical, educational and other good works, when brought face to face with this condition will resort to all kinds of sophistry, subterfuge, to any means whatsoever to induce the physician to murder their unborn offspring. While heretofore there has been a widespread indifference on the part of the public, and even of our courts, as to the importance of this matter, I am glad to note recently a more thorough appreciation of the gravity of the offense by some of our highest State courts. The Supreme Court of the State of Idaho, in the case of the State *vs.* Alcorn says: "An unnatural abortion, brought about by means of drugs or instruments, violates the Divine law, the law of Nature, decency, the best interests of society, the criminal statutes of the State, and not only is destructive of a life unborn, but places in jeopardy the life of a human being, the pregnant woman." This court also holds that "where an unnatural abortion is sought to be caused by the use of instruments or drugs and death results, an abortion not being necessary to save the life of the woman, such acts under the statutes constitute the crime of murder in the second degree." (*Journal American Medical Association,* July 6, 1901, p. 61.)

The question naturally arises, What can be done to prevent the perpetration of this crime, and to obviate its physical and moral evil consequences? Before we can correct an evil, we should have a clear conception of the causes which produce it. As I have indicated in a previous article, entitled "How Can We Prevent the Slaughter of the Innocents?" printed in the *Charlotte Medical Journal,* February, 1898, I believe the principal causes are as follows: (1) Hereditary vestiges of pre-existing savage or barbarous instincts and practices. (2) Ignorance of the biological fact that from the moment of conception the developing embryo contains all the potential powers of the fully-developed individual. (3) Apathy, or a spirit of *laissez faire,* on the part of the great majority of the people. (4) Incompetence on the part of legislators to comprehend the true significance of the subject, and the consequent futility of the laws enacted by them to prevent the crime of abortion by adequate punishment thereof. (5) The inability, or disinclination, of judges to appreciate the rights of the embryo as an individual entity during the early stages of its development. (6) The ignorance, or disregard, of the subject on the part of teachers, ministers, druggists, and physicians, and the frequent complicity of the two latter classes in the perpetration of the crime. (7) Ignorance of the physical dangers and the moral degradation inevitably attendant on this offense.

Prevention.—The question naturally arises, How can this evil be prevented, or at least mitigated? In the first place, every true physician should be aroused to a keen appreciation of the moral and professional importance of this subject, and he, in turn, should strongly impress upon every one who applies to him for such service that, from a biological standpoint, the operation, unless absolutely necessary to save the mother's life, is plain, simple murder and cannot be extenuated in any manner whatsoever. At the same time, the terrible physical evils which may and do frequently follow should be strongly impressed upon the mind of the applicant and the moral infamy of the offense seared into her very soul, if such a thing be possible. Then, too, every medical society in the land should set the seal of its emphatic condemnation on this offense, and should ignominiously expel any physician guilty either of its perpetration or of connivance thereto. Every physician should be given to understand that he dare not produce abortions upon prostitutes, or upon those who, for convenience or social indulgences, would violate Nature's laws, and at the same time retain his position as an honorable professional man or woman.

Nor is it sufficient that the physician merely occupy the negative position of refusing to perform such operation. He should embrace every fitting opportunity to impress its importance upon others. Legislators and judges should be taught the biological facts on which life rests, so that laws may be framed and decisions rendered in accordance with the necessities of the case. Ministers should, likewise, be instructed and aroused to an appreciation of the enormity of the crime and its devastating consequences. Their calling affords them many opportunities to point out vividly the physical dangers and moral turpitude of the offense. They are in a position to do much good, and their sympathy and co-operation should be secured in overcoming the evil. Teachers in our higher institutions of learning can, by instilling correct moral principles into the minds of students, do much toward preventing this baleful practice.

Finally, laws, with severe penalties for their contravention, should be enacted prohibiting newspapers from advertising and druggists from selling abortifacient remedies, except on prescription of properly-licensed physicians. Such laws, if properly enacted and rigidly enforced, would, I believe, prevent a great many of these crimes, and have a very salutary effect in awakening the people to the enormity of this offense.

Unique Case in Bankruptcy.—A petition in involuntary bankruptcy has been filed against Samuel Jacobi of 1595 Broadway by the following creditors: James E. Kelly, $500; Alexander Strong, $200, and William H. Bates, $125. The creditors are physicians and their claims are for medical attendance and expert testimony. This is said to be the first instance of the kind in which three physicians have appeared as creditors.

ON THE USE OF THE OPIATES, ESPECIALLY MORPHINE.[1]

BY OSCAR C. YOUNG, M.D.,
OF CHARLESTOWN, N.H.

I AM induced to write a short paper on the rational uses of the opiates, partly because I have been a patient and have suffered as intense pain as it is possible for any patient that any of you will ever be called upon to relieve from the tortures of physical agony, even if only temporarily, has ever suffered, and partly because there is a growing tendency to the extreme of treating human ailments by any and all other methods except by the administration of the common and well-tried remedies.

I will illustrate the latter statement by calling your attention to the abolition of the former practice of blood-letting for plethora and anemia, alike for protracted fevers and for pneumonia, without discrimination, and now when we should bleed for acute congestive conditions, or apoplexy, we do nothing of the sort. It is true that the practise of some, by the administration of aconite, belladonna or veratrum viride, of "bleeding them into their own veins," is a substitute for literal blood-letting, but as there has been such a great reaction to the opposite extreme, the former one in this practise, so is there a growing tendency to the abolition of the use of drugs. And if this is true of any drug—and I think none will deny that it is so—it is certainly true of the most potent pain-extinguishers, the opiates.

I am well aware that I differ in opinion from many and very able men in respect to the uses to which the opiates may be put; and if an expression of this opinion from any who may read this paper will lead to a fuller appreciation of their value, my object in writing this paper will have been accomplished.

Just a word to any who may have become extremists by abolishing drugs from their therapeutic armamentarium. Our remedies to-day are better understood and our knowledge of their rational uses is better appreciated than ever before, and the practitioner of medicine who fails to get results from the use of drugs in his cases, considered as a whole, has failed to appreciate the connection between the proper drug and the condition he is seeking to relieve. The chief cause for the reaction against morphine and opium is because a few decades ago it was given so indiscriminately by the general practitioner that many, very many, became addicted to its use; the habit was formed, and the person's life thus ruined; for of all narcotic habits, the alcohol habit included, I believe this habit is the very worst. Thus, the present generation has been so thoroughly warned, both by teaching at college and by observation, that now they are in many instances so very afraid to give it, even for the worst pain, that the patient suffers agonies worse than any hell for want of one-eighth of a grain of morphine. And, on the other hand, it is sometimes used so indiscriminately that a dose is thrown into the patient for a common pain or ache which could be endured until a milder remedy would relieve the suffering; the latter, however, is not a common occurrence.

I believe it wiser to take a few minutes more in looking over our patients—and it won't take many more—and ascertain the cause of their suffering sufficiently to enable us to judge intelligently as to whether they need morphine hypodermically or whether a small dose by mouth will not be best, or if a dose of bromide or sulphonal for sleep will not suffice, or if an acetanilid compound tablet or one of the milder analgesics will not answer quite as well to relieve pain, if pain there be.

The present danger of the practitioner's inducing the habit in a patient is, I believe, overdrawn. It is true that it is one indulged in by a great many, but it is also true that the physician is not at fault nearly as often as formerly, for now we *will not* give it after we recognize that an analgesic or hypnotic is required for a much longer time than two or three weeks, and as a rule we do not tell what we are giving the patient.

Not long since I was called to an adjoining town to see a patient suffering intense pain. I inquired if he had ever taken morphine. The reply was, "Oh yes, Dr. T. gave it to me once. Dr. T. was a great fellow to give that, you know." But let me say right here that since the above Dr. T. left this town I have been there a good deal and have never found a morphine habitué. Why? Because he gave them something which stopped their aches and pains and then stopped.

Untoward Effects.—When opium is given to some persons it produces for some hours marked wakefulness followed by sleep, and in many patients it produces, after its primary effect has worn off, great nausea, followed in some instances by vomiting. The mental effect in some instances may be simply overwhelming. By far the best method of preventing these undesirable effects of opium or its derivatives is to administer $^1/_{200}$ gr. of nitroglycerin at the same time that we give the opiate.

One of the chief causes of the nausea is the change in the body of morphine into oxy-dimorphine, which is eliminated into the stomach and there reabsorbed and then induces the secondary effects. It is also a fact that these symptoms can be largely done away with by giving at the same time 20 grains of bromide of potassium, and by using the preparations that are largely devoid of narcotine, such as the deodorized tincture or the deodorized opium itself.

The action of opium upon man and the lower animals varies with the degree of intelligence or cerebral development. It quiets the brain and excites the spinal cord. The dominant action is to produce nervous sedation in small doses and to induce sleep in larger amounts. Sometimes, however, in persons accustomed to its use it pro-

[1] Read before New Hampshire State Medical Society, 1901.

duces a state of restless insomnia or quiet, wakeful apathy. Small therapeutic doses have no effect on the circulation, but larger ones slow the pulse, increase its force, and slightly raise arterial tension—and here it is fitting to say that some object to giving one-eighth of a grain of morphine in severe cases of pleuropneumonia, with the most intense suffering at every breath, because of an imaginary depressing effect upon the heart.

I have in mind a case that ultimately terminated fatally, in which the physician asked the patient to bear the pain if possible without the morhpine; she did, until death released her. Think you that one or two hypodermics of one-eighth of a grain of morphine and $^1/_{200}$ of a grain of atropine in twenty-four hours would have hastened death? Not so, but it would have given such relief and perhaps aided in supporting the patient past the crisis by giving some rest.

In very minute doses opium is a feeble stimulant to the respiration, or at least not a depressant. In large doses or overdoses it is one of the most potent depressants and paralyzants of the respiratory center, causing death by this action. The bodily temperature is raised slightly by full doses and lowered by poisonous amounts of opium. It diminishes tissue waste. It is eliminated by way of the intestines and kidneys, but experiments have proven that most of it is destroyed by oxidation in the liver and tissues.

Morphine is chiefly eliminated by the stomach, and if in cases of poisoning by this drug the stomach is frequently washed out recovery is much aided by thus preventing reabsorption.

In ordinary amounts it diminishes peristalsis of the stomach and intestines by stimulating the splanchnic inhibitory fibers of these organs. In large doses it paralyzes and increases peristalsis —the latter producing diarrhea, the former constipation. Opium checks the secretion of every organ except that of the skin.

Opium is used for the relief of five conditions, (1) pain, (2) insomnia, (3) irritation and inflammation, (4) oversecretion, and (5) systemic strain.

Opiates are the best agents that we possess for the relief of all forms of pain, except possibly some forms of neuralgia which are relieved very readily by antipyrin or its fellow compounds, which excell the opiates because they have no bad after-effects; and still we always have in mind that its depressing tendency may be an objection to any coal-tar product. Still it is to be remembered that there is no agent so potent for the intense neuralgias as a hypodermic of morphine. There is one form of pain in which opium must not be used—cerebral congestion and cerebritis, for it will aggravate the trouble. In acute traumatic meningitis, however, it does good, either alone or combined with mercury in sthenic cases.

In the various colics, renal, hepatic, etc., nothing acts so well as morphine. In dysmenorrhea, morphine associated with belladonna relieves the spasm of pain, and yet they so counteract each other that there are no after-effects sufficient to contra-indicate their use.

For the relief of all forms of intense pain in any disease under ordinary conditions, there need be no hesitancy in administering hypodermically a moderate dose of morphine. If the patient has a dread of the needle, or if for any reason it is thought best not to give it so, then give in hot water by mouth, with or without the addition of whisky or brandy. Or we may give deodorized tincture of opium—an excellent agent—in the same manner as the morphine, by mounth. If neither of these is desired, give the fluid extract or tincture of opium in starch-water by enema. If the pain is in the pelvis this last is the best method of administration. In violent sciatica, inject the morphine over the affected area.

In other cases of superficial inflammation, treat by applying locally lead-water and laudanum. But remember to be on guard about forming the habit in patients prone to repeated attacks of pain.

Upon inflammation opium seems to exert some influence not very easy of explanation; both large and small doses are of value upon inflamed serous membranes, as in meningitis and pericarditis. It allays the nervous cough following hemoptysis and quiets the excitement, and thus has the double effect of relieving the patient's fears and diminishing the danger of aggravating and causing another attack of bleeding. Whenever a cough is in excess, *i. e.*, greater than is necessary to free the lungs from mucus, morphine may well be given in small doses, but if the number of râles increases by its use it must be stopped, as an increase of the number of râles indicates an increase in the accumulation of mucus.

In muscular rheumatism and immediately after a so-called ordinary cold, nothing is better than hot internal and external applications, and four or five hourly-doses of two grains of Dover's powder.

In serous diarrhea, diabetes insipidus and diabetes mellitus, and in the treatment of oversecretion of any secreting surface except the skin, opiates may well be used.

The employment of opium, morphine or codeine is a very valuable form of treatment for diabetes mellitus. Increase the dose very rapidly, as its effect is produced only by rapidly ascending amounts. Diabetic patients seem singularly immune to the nervous influence of this drug or its alkaloids. Crude opium is more effective in diabetes than either morphine or codeine. None of them probably cures the disease, but so modifies it as to make life bearable and happy, for the sugar is decreased in many cases and the sense of excessive hunger, thirst and nervous idditability is put aside. Itching of the skin in this class of patients is relieved by this treatment.

Opiates may be used to check mucous diarrhea after the intestinal canal has first been swept clean of mucus by a purge. Minute doses of $^1/_{80}$

to $^1/_{50}$ grain of morphine hypodermically will often cure an attack of serous diarrhea in children. The camphorated tincture is especially valuable in diarrheas, because it contains camphor and a volatile oil, both of which act as antiseptics.

In prolonged strain upon the system, as in great physical or nervous effort, or more frequently in old age to smooth out the cares of the remaining years of life and decrease worry, opium is useful, but not to be much used in young persons for fear of causing the habit.

In advanced phthisis it is of especial value to give just enough to relieve from pain and excessive cough, but care should be taken not to give enough to choke the patient and thus hasten death.

In heart disease, especially of the mitral valves, the patient often breathes very well when awake, but as soon as he falls asleep he starts up gasping for breath, and while it is especially true that morphine greatly relieves this very distressing symptom in mitral disease, it is of value in difficult breathing in all forms of heart disease, and should be always tried with discretion. It is contra-indicated in fatty degeneration of the heart.

Give it hypodermically in moderate doses if possible.

The use of opiates for sleeplessness I regard as one of the most important subjects for the general practitioner to keep in mind. There are plenty of remedies containing not a particle, or very little, of the danger that opium does of causing a habit, if the inability to sleep is due to any or every cause but pain. And although we have all tried some form of this drug to produce sleep when our patient is not in pain, we soon prescribe sulphonal, trional, or the bromides, or some remedy having similar action if we find that a hypnotic is to be needed long; and patients will do better, if not in pain, to take something other than morphine.

But let us place ourselves in the position of the patient and let us have many wakeful nights, due to a neuralgia or to some nerve injury, worn out with loss of sleep, too tired even to sleep if not in pain, and still suffering agonies from the pain, how long would one of us want to get along with a little dose of codeine, or bromide, or hyoscine? We wouldn't endure it at all; we would simply get the morphine or the deodorized tincture and give ourselves a good dose and quiet the distress, and get some sleep.

I said we would get it ourselves; so we would if we were able to do so; but supposing it is our patient and we do not like to give opiates very well, and we come in and see him and observe his pulse and temperature and find him doing well on the whole, and think his talk about intense pain is exaggeration, because he has had so much pain that he is getting hysterical, and we imagine that he is craving a hypodermic, and so give him something else that does not touch the pain at all, and then he has another night such as the old time clergy would depict as the lowest Hades, and he goes on night after night like this; but gradually the injured or diseased nerve gets better, pain subsides, sleep is restored, and lo, the patient is cured, and we say how much better than if we had given him morphine; he would have wanted it right along, and we would have had an awful row with him to break it off.

Or, perhaps he has been *very* ill; the loss of sleep goes on night after night; he gets more and more exhausted, and dies. Because he was so ill? Possibly, but I'll venture to say many who are now dead might have been sustained by giving them sleep, by relieving the pain, and made to live by the use of a few doses of morphine.

I have had a trying personal experience in this very way. I was struck by an iron lever, ¾ of an inch in diameter, of a locomotive engine going at the rate of eighteen miles an hour, just where the sciatic nerve makes its exit from the pelvis. The inflamed original injury extended to the whole nerve. This is the largest and longest nerve in our anatomy, and there is plenty of opportunity to build up an ache, and the pain for weeks was something dreadful. During the first forty-eight hours I received ⅞ of a grain of morphine in seven hypodermics, and one week later one more of ⅛ grain. That was all the morphine administered. How I used to plead, beg, scold, and even cry for just one dose to relieve the intensity of the pain. I was obliged to lie on my back all the time for one week. I could not lift my head from the pillow, and tried to persuade a member of my family to bring me just one grain of opium. No, I could not have it, as it was thought best not to give me opiates; milder remedies which required two or three hours partially to relieve the pain were thought best for me. Were I to go through the same experience again I would a hundred times rather die than endure such pain, even if sure of recovery in the end.

I beg your pardon for alluding to myself, but what I suffered has made such a profound impression upon my mind that if I were to live to the age of Methuselah I could not forget it, and I mention it because some of you will have surgical patients whose suffering will be just as intense as mine was, and I beg of you, in the name of humanity and for the credit to yourself, that you will occasionally give some opiate to stop the pain and give them sleep. When they beg for relief with tears in their eyes, do not treat them as if they were morphine habitués or lunatics, and wanted the drug for its intoxicating effect, but treat them as you would want to be treated under the same conditions.

Unless you find some ill-effects from the drug after the first or second administration, do not hesitate to give ⅛ to ¼ grain once a day for one or two weeks, or even twice a day if necessary. But very often one injection every second or third day will suffice to give several hours of refreshing sleep, and the sharpness of the pain will have been dulled, so that another will not be needed for two or three days.

I remember in my own case how, after three

days of especially intense pain and after at last making myself understood, I was given ⅛ grain of morphine and inside of ten minutes I began to go to a beautiful place and soon was fast asleep. I shall never forget the world of good that one-eighth of a grain did me. The pain never returned again with such force as before, while under milder agents it had been growing more severe every day. In fact, after this one-eighth of a grain on the eighth day, I was able with the milder agents to control myself and, I believe, did not again ask for morphine.

If we have a patient of average intelligence, let us treat him as we would wish to be treated were he the doctor and we the patient.

GONORRHEA IN WOMEN.

BY J. B. KILLEBREW, M.D.,
OF MOBILE, ALA.

Gonorrhea in women is of great interest both to the medical profession and to society. Next to infection following labor, miscarriage or abortion, it is the cause of more suffering among women than any other agent. Probably, nearly half the cases of pelvic inflammation are of gonorrheal origin. This is to be greatly deplored for many reasons. In the majority of cases a woman contracts this loathsome disease innocently; and in many cases in which the damage done is not sufficient to produce invalidism, the function of the generative organs is so impaired as to cause sterility, thereby depriving the victim of the privileges of motherhood, the highest and noblest she possesses.

The sole causative germ is the gonococcus, but the infection is usually a mixed one. The disease may be contracted in many ways, usually by sexual intercourse with a male suffering from a gonorrheal urethritis. Any part of the genito-urinary tract may be involved, but those parts covered by stratified squamous epithelium, being more resistent to the invasion of the gonococcus, are not as often the seat of infection as those covered by cylindrical epithelium. Hence, it is more usual to see a gonorrheal urethritis and endocervicitis than it is to see a vulvitis or vaginitis. The vulvovaginal glands and the glands of the vestibule are frequently the seat of primary infection. From some one or more of these foci of infection the disease is very likely to spread to the remainder of the genital tract, producing endometritis, salpingitis, ovaritis and peritonitis. Especially is this true in untreated cases. This extension of the disease is by continuity of tissue and not through the lymphatics.

The symptoms of gonorrhea in the female are not often severe and do not give rise to much suffering before the infection reaches the endometrium. It often happens that a woman who has married a man with gleet will notice, after five or six days, that there is a slight burning pain upon urinating; some redness, swelling and soreness about the vulva, with a profuse discharge of pus which compels her to bathe frequently. Being ignorant, she will attribute the trouble to excessive intercourse; and as the suffering is not great she will not, because of modesty, make mention of it, but bear the annoyance with good grace. The menstrual flow will appear before the signs of inflammation have disappeared. For three or four days it will be normal. Then follow sharp lancinating pains in the uterus with severe cramps. The flow will increase in amount and three or four days after the onset of the severe symptoms there will be a most profuse, irritating yellow discharge. The entire pelvis will become tender, frequently so much so that she cannot bear to be touched. The pus is probably mixed with blood. The temperature rises to 100°-103° F., and the pulse ranges from 90 to 110. Such is a typical picture of an acute attack of gonorrhea from the time of infection until it reaches the peri-uterine structures. Uterine infection may take place at any time, but usually occurs at the menstrual period when the endometrium is exfoliated. Fortunately, in many cases, even when no treatment has been applied, the gonococci do not advance beyond the internal os. In this event the symptoms gradually subside, and in many cases disappear entirely. Proyer has examined the scrapings from the cervix of 100 clinic patients who had absolutely no discharge of pus and found the gonococcus present in 22. This demonstrates the fact that a woman may show no evidence of gonorrhea and still be in a condition to infect others and to become actively inflamed herself, if the cervix be subjected to any traumatism. This also makes clear the necessity for sterilizing the cervical canal, superficially at least, before passing the sound, in order to prevent carrying the germs into the uterine cavity. I make it an invariable practice to apply tincture of iodine to the cervical canal before passing the sound.

That the onset of this disease in women is insidious and the symptoms mild is much to be regretted. Were they of sufficient severity to compel her to seek medical aid while the infection is confined to the urethra, vulva and vagina, in most cases she would be easily and thoroughly cured. The ease with which local treatment can be applied would render this result the rule, but, after the infection has reached the interior of the uterus, the condition is widely different, and in my opinion it is never cured except by surgical means, and then often only after the generative organs have suffered much damage.

The symptoms of gonorrheal infection of the genital tract are similar to those of infection by other pus-producing bacteria, and a positive diagnosis cannot be made except with the microscope. Even then it is not always positive, as one sometimes fails to find the gonococcus in the discharge from a gonorrheal infection. When the gonococcus is found, of course, the diagnosis is unmistakable. In gonorrheal infection the discharge is usually very profuse and irritating. The gonococcus has a predilection for certain

structures, especially for the urethra, and nearly every case of purulent urethritis is of gonorrheal origin. When facilities for the microscopical examination of the discharge are not obtainable, the history of the case is the best guide in making a diagnosis.

The prognosis in those cases in which the infection is limited to the urethra, vulva and vagina is good: in all others it is doubtful.

The treatment may be considered under two heads, *viz.*, preventive and curative. So long as the customs of society permit men to have promiscuous and illicit intercourse with women without putting the brand of disgrace upon them, it will be impossible to eradicate the disease from among us. Legislation can do no good, since laws governing this question, if made, cannot be enforced in the present state of society, and a law that cannot be enforced is worse than no law at all. It is not the prostitutes nor the women of loose character whom we wish to protect, but those young women who innocently contract the disease from husbands suffering from chronic gonorrhea. Few men would marry when in a condition to infect others if they realized their condition and the dangers to which they would subject the woman whom they wish to make their life companion. Men often regard gonorrhea in far too light a manner. It is not uncommon to hear a man say that he "does not mind gonorrhea," that he would as soon have it as a "bad cold." In some cases the disease in man is not productive of very distressing symptoms and subsides in a few days. No pus is seen coming from the urethra and he is apparently well, but in many of these cases there will remain a latent infection which will be aroused to activity when the proper stimulant is applied. Men should be taught the danger and insidiousness of this affection and the widespread evil resulting therefrom. The importance of subjecting themselves to treatment early in the disease and of continuing treatment until every sign of infection has disappeared cannot be too strongly insisted upon.

Many men have a stricture as a result of an attack of gonorrhea. This they look upon as a harmless condition when in reality it is a very serious matter. In many cases of stricture there is, just posterior to the narrowing, a small, inflamed or ulcerated spot in which the gonococci are present, but are quiescent and give rise to no acute symptoms. The ulcerated surface may be so small and the discharge from it so slight that the amount accumulated during the intervals between micturition is not great enough to cause pus to appear at the meatus. A man may be in this condition for years and never see a drop of discharge from the urethra, and still be capable of infecting others. I do not believe that any man with a stricture should marry before he has been thoroughly cured. Many others marry when suffering from a gleety discharge, thinking the discharge innocent because it produces no acute symptoms in them, but this discharge often contains gonococci. These germs, which are quiescent and cause no trouble in a urethra which has become more or less immune to their action, are, nevertheless, capable of producing the most violent inflammation when introduced into a new field. In many instances the gonococci do disappear from the discharge and in such event it is harmless; but, as there is no positive way of determining when the gonococci are present and when they are not, it is always best to be on the safe side. No man suffering from any of the sequelæ of gonorrheal urethritis should marry. Much more good can be accomplished by education than by legislation at the present time, and it is the duty of all physicians to educate the people in this matter.

As before stated, the curative treatment of gonorrhea in women is comparatively easy while the infection is confined to the urethra, vulva and vagina. Treatment consists of rest, thorough cleansing by douches containing some antiseptic solution, and local applications. If the vagina or vulva be affected it should be douched every three or four hours with 1:5,000 bichloride solution or ¼-per-cent. lysol solution. Local application of 1-per-cent. nitrate of silver or 2-per-cent. protargol should be made to the urethra once every twenty-four hours. The solutions applied to the vulva, vagina and cervix should be stronger. For this purpose I employ tincture of iodine, or 5-per-cent. nitrate of silver. These applications should be made once a day for three or four days and then every second day until all evidences of inflammation have disappeared. If the cervix is enlarged and congested it should be depleted by local blood-letting once a day for two or three days. Should an abscess form in the vulvo-vaginal glands it should be opened and treated in the usual way.

The only question in the treatment of acute gonorrheal endometritis that admits of discussion is the advisability of curetting. I believe these cases should be curetted as soon as possible. Some operators are opposed to this procedure, claiming that complications are apt to occur. Complications do not follow a well-performed curettage nearly as often as they do intra-uterine irrigations or any other method of non-operative treatment. Curettage is done for endometritis produced by any other pyogenic bacteria and I can see no reason for discriminating in favor of the gonococcus. It is always well to remember that complications do sometimes follow curettage and to tell the patient or her friends of this possibility, so that you will not be censured should such occur. If the patient will not consent to operation, intra-uterine irrigation is the best method of treatment. If this is begun before the gonococci have penetrated the endometrium a cure may result, but does not always follow. I usually irrigate first with a 1:10,000 bichloride solution, to be followed immediately by a saturated solution of boric acid. This treatment should be repeated every twenty-four hours. In some cases the cervical canal is so small that irrigations cannot be given. Vaginal douches of ¼-

per-cent. lysol solution at a temperature of 110° to 120° F. should be given for fifteen or twenty minutes every two hours.

In nearly all cases of chronic gonorrheal endometritis the infection has extended to the periuterine structures and any treatment applied to the endometrium alone will not effect a cure. In these cases treatment should also be applied directly to the appendages. A well-performed curettage will, by removing the focus of infection, give some temporary relief in most cases, but there is usually a relapse. The treatment applied to the appendages in all cases, not of long standing, should be at first conservative. It can be applied through an incision in Douglas' cul-de-sac and will in many instances bring about a cure. Radical work should be done in cases in which conservative treatment has failed, in which there is extensive suppuration, and in cases of genital sclerosis.

The conservative treatment to be employed will vary with the condition found to exist upon inspecting the appendages through the cul-de-sac opening. It consists essentially of breaking up all adhesions, opening the fimbriated end of the tubes, wiping them out with iodoform gauze and securing drainage. In those cases in which the fimbriated end of the tubes cannot be opened it is best to do a salpingostomy.

Not all cases treated in this way will be cured, but some will, and as a secondary radical operation can be done in those cases in which failure follows the conservative treatment, without any increase of danger, I believe it our duty to try the conservative treatment first and to make every effort to save for the woman her generative organs.

In cases of pyosalpinx, unilateral or bilateral, in cases of genital sclerosis, and in those cases in which conservative treatment has failed, a complete vaginal hysterectomy should be done, using forceps instead of ligatures to control hemorrhage.

A CASE OF SPONTANEOUS RUPTURE OF THE EYEBALL.[1]

BY W. WHITEHEAD GILFILLAN, M.D.,

OF NEW YORK;

FELLOW OF THE NEW YORK ACADEMY OF MEDICINE; VISITING OPHTHALMIC SURGEON TO THE CITY AND FRENCH HOSPITALS; OCULIST TO THE SAILORS' SNUG HARBOR AND HOUSE OF REFUGE; ASSISTANT SURGEON TO THE MANHATTAN EYE AND EAR HOSPITAL, ETC.

M. F., female, French, aged eighty-seven years, entered the French Hospital April 3, 1900. The patient was treated for paralysis agitans. Her mental, as well as physical, condition was very poor. As the ophthalmologist to the Hospital I was called to see her in November, 1900, to treat her for a slight catarrhal conjunctivitis of both eyes. At that time I noticed senile cataract in each eye, as well as large opacities of the cornea, but there was no sign of staphyloma. The vision in each eye was very poor, being only $^{1}/_{200}$. In the course of three weeks she was cured of the trouble with the conjunctiva. On February 27, 1901, at three o'clock in the afternoon, she complained of a very sharp pain on the left side of the head. At this time the patient was in bed, although a short time before she had been to the closet with an attendant. By the time the assistant house surgeon, Dr. Thomassen, reached her, there had been a large hemorrhage from the globe of the left eye, much larger than one usually gets in an operation for enucleation. The crystalline lens was lying on her left cheek, much vitreous had escaped, and a portion of the iris was prolapsed.

The attending surgeon to the hospital, Dr. George G. Van Schaick, was making his daily visit to the institution. He was called and came with the house surgeon, Dr. A. W. Haskell. Dr. Van Schaick decided to cut off all the vitreous and iris that was presenting at the wound. This was done and a bandage applied.

As I was out of town at the time, I did not see the patient until the following day. On examination I found that the opening in the cornea was in the center and seemed only large enough to allow the lens to pass through. It was horizontal and the edges were rough. There was much blood in the anterior chamber. The size of the eye was not diminished. The wound closed slowly, it being six weeks before the cornea was completely healed.

On April 28, 1901, the patient was transferred to Bellevue Hospital. I was anxious to get the eye, if the patient died, and have a microscopic examination made. On July 1st I took up my service at the City Hospital, Blackwell's Island, and thought I might see the patient there, as most chronic cases are sent there from Bellevue. She never reached the City Hospital and must have died during the hot spell in the last of June, although I could get no history of the case at Bellevue.

This case is strange in the fact that there was no traumatism nor was there any ulcerative process going on in the cornea. There was no staphyloma. Had there been any of these conditions, there would be nothing unusual about the case. The patient had well-marked arteriosclerosis, as might well be expected in a person of her age. It is possible, perhaps, that straining at stool may have ruptured one of the vessels of the eye and produced the hemorrhage, which, as I have already stated, was unusually large.

I have been unable to find any literature on the subject, or to find any colleague who has heard of a similar case.

[1] Read before the Section on Ophthalmology of the New York Academy of Medicine, December 16, 1901.

Brooklyn Hospital Gets $3,000.—The will of Dr. William Augustus Pierrepont of Brooklyn was filed recently. Dr. Pierrepont was unmarried and died on January 6th, a few days after the death of his mother. The Brooklyn Hospital receives $3,000 for the endowment of a bed to be known as the "Dr. Pierrepont Bed."

MEDICAL PROGRESS.

OBSTETRICS AND GYNECOLOGY.

Puerperal Phlebitis in an Unusual Locality; Relapse.—Puerperal phlebitis occurring outside of the uterine veins or the vessels of the lower extremities is comparatively rare. Hence special interest attaches to a case involving the epigastric and internal mammary veins, observed by M. PINATELLE (Gaz. hebd. de Méd. et de Chir., Dec. 19, 1901). The veins of the lower extremities were first attacked about a week after labor, and the phebitis gradually ascended, attacking the vessels of the abdominal wall. The patient was febrile for two months and unable to walk for six months. Eleven years later, no miscarriage, pregnancy or new infection having occurred in the interval, a relapse recurred; the pain and swelling on this occasion were limited to the left abdominal wall, where the thickened, sensitive, cord-like veins could be distinctly palpated. Two years later a third attack of phebitis occurred, this time affecting the right side and embracing the region between the xiphoid appendix and the root of the thigh. There was no sensitiveness, edema or loss of power in the lower extremity.

Lacerations of the Perineum.—A number of essays have been written for the New York Medical Journal (Dec. 28, 1901) upon the causes and methods of preventing this annoying complication, which, if not repaired at once, frequently causes a great deal of misery later. G. B. TWITCHELL says that the vulvar opening is not stretched as by an entering wedge, but by having the lower end pushed away from the upper. That is, if, in the swinging of the head, as it extends, it *slides* on the perineum, the space between the pubes and fourchette will increase; on the other hand, if the head *does not slide* during this swing, the opening will not increase and the perineum will follow the head. The best lubricant to facilitate this sliding is the natural one and hence douches, frequent examinations, etc., are to be avoided. M. A. WALKER urges the importance of emptying the rectum and bladder to give more room, as a preliminary step. During the latter part of the second stage all voluntary effort should be stopped so far as possible by encouragement not to "bear down" and later by chloroform. Too rapid advance may be avoided by pressure with the fingers pointing posteriorly and pressing against the (maternal) posterior segment of the head during each pain. Thus by retarding the advance of the frontal segment there is a tendency to increase flexion and allow the suboccipital region of the head to pass as far as possible underneath the pubes. The shortest diameter of the head thus comes in contact with the vulvar outlet and the head should be slowly extended over the perineum between pains, taking care that the nose and chin are not born with a jerk. J. L. ANDREWS sums up the subject by advising (1) patient and persistent endeavor to bring the longest diameter of the presenting part in relation with the longest diameter of the outlet, and (2) the constant effort to secure perfect dilatation of the soft parts. All writers advise against placing the fingers in the rectum to assist extension on account of the danger of infection, and most of them express themselves as opposed to episiotomy.

Submucous Myomectomy.—The removal of fibroids of the uterus located just beneath the mucous membrane is usually done through the vagina, with or without cutting the neck of the uterus, provided the tumor is not too large. A. RABAGLIATI (Med. Press and Circ., Dec. 11, 1901) encountered a large fibroid which he could not remove except through the abdomen. After exposing the uterus and drawing it up into the wound as far as possible, he opened its anterior wall by a free incision until the mass was reached and shelled out. This left only the mucous membrane separating the wound in the vagina from its cavity. As a preliminary step before making the incision he gently clamped both ligaments to be sure no severe hemorrhage should occur as soon as the deep work was begun. After the clamps were removed no such hemorrhage occurred, but as a precautionary measure their use was wise. The wound of the uterus was then sutured in tiers and the abdominal wound closed without drain in the usual way; a complete uneventful recovery followed. The myoma measured five and one-half by four and one-half inches and consisted chiefly of a mixture of myomatous tissue embedded in fibrous tissue.

Dysmenorrhea.—This most troublesome condition is discussed from the standpoint cause in an exhaustive paper by Dr. MENGE (Centralbl. f. Gynäk., 1901, No. 50). The pain of this condition is very like that of childbirth, as is admitted by all women who have borne children and suffered from dysmenorrhea. The after-pains of childbirth, moreover, bear out the supposition that obstruction in the canal of the uterus is the most fertile cause of the pain. In this case it is the large clots of blood which are the source of the obstruction, although the canal is almost wide open. The degree of the pain depends upon the character of the obstruction and the condition of the central nervous system. If the obstruction is large, then the pain alike in childbirth and in dysmenorrhea is much greater, even with a healthy nervous system. The converse also obtains and we find many women who suffer little pain during childbirth and none during the menstrual flow. On the other hand, there are very many women who have functional neuroses and therefore, although there is little or no obstruction, suffer intense pain under both conditions. Pains of dysmenorrhea are also comparable to those experienced when a foreign body is left in or has grown in the organ. Such are polypi, mucous, fibrous or placental; remains of the decidua; sounds, gauze or pessaries. Here again the disproportion between the canal and the foreign body determines the amount of pain. Dysmenorrhea is also due to an early improper clotting of the menstrual blood, which should be fluid, at least until after it has left the uterus. The highest degree of dysmenorrhea is reached with a healthy nervous system when all the blood of the menses is retained, as is seen in congenital closure of the uterus with the development of a hematoma at the time of puberty. As soon as the blood is evacuated all the pain disappears. It is also seen in occlusion of the internal os, sometimes secondary to operations or to the use of caustics. Removal of the cause cures without treatment of the nervous system. With normal genital organs dysmenorrhea may occur from the presence of mucus in the canal of the cervix. Usually when this is expelled the pain decreases or ceases. Occasionally, however, it continues owing to the disturbance of the nervous system by the pain first experienced. The small narrow canal of the cervix, without disease, in young women and nulliparæ may cause both dysmenorrhea and sterility. Here by mere dilatation, with or without incision, the symptoms usually disappear. Permanent relief is present only after childbirth. Often these patients require, however, long treatment of the nervous system. Inflammatory dysmenorrhea is the last type. This should be treated by removing the cause and always by treating the nervous system, because this is damaged by both conditions. Without doubt the purely nervous

type of dysmenorrhea, namely, that in which the nervous system has been damaged, is the most common of all and accounts for the widespread amount of hysteria and neurasthenia in women. The importance of this condition is usually overlooked by physicians. It, however, demands most careful and patient treatment in the usual ways.

Early Sign of Pregnancy.—The earlier a diagnosis of pregnancy and of the death of the fetus can be made the better. O. SCHAEFER (Centralbl. f. Gynäk., 1901, No. 50) says that careful observations will show in the newly-pregnant woman a temporary pointedness of the features, swelling of the breasts and an unexplainable and obstinate tendency to faint, decrease in the urine, somnolence, forgetfulness and temporary decrease in mental acumen, if the patient is anemic These are the well-known early systemic signs. The new local signs to which he directs attention consist in a characteristic discoloration in stripes, reddish on a livid background, which appear in the neighborhood of the urethra or on the vestibule of the vagina. The stripes run for the most part crosswise or obliquely. So soon as the child within the womb is dead these stripes disappear, especially if the uterus is emptied, even though a packing of gauze be placed within it. The condition is due, therefore, not to the simple hindrance of the blood-flow, but to a vasomotor reaction depending entirely upon the life of the child; as soon as the pains begin with the purpose of emptying the uterus of the dead fetus the stripes disappear. An examination of the blood will also show what the writer terms a resistance of the cells of the blood from the uterus to admixture with various physiologic, pathologic and artificial substances. The most simple and direct method of making this examination is to employ the iodine-potassium-iodide solution of Gram. This mixture makes the so-called resistant blood-cells brown, the less resistant a light yellow and the very feebly resistant almost colorless. As a rule if the woman is healthy, the blood-cells which take a deep stain outnumber the weakest between two and one-half and five to one. The method is not absolutely reliable but is an indication strongly suggestive of pregnancy. Whenever the blood examination is resorted to it will be wise to make a control test of the blood taken from the finger, simply because the blood from the uterus alone may be misleading. Another feature of the blood in early pregnancy is that when the cervix is pricked to draw it down it is rather difficult to stop the hemorrhage.

Twin Births.—Occasionally in pregnancy with twins one child is born and then after a long pause, many hours in duration, the second appears. S. CHOZAN (Centralbl. f. Gynäk., 1901, No. 49) says that when face to face with this condition the practitioner must decide between the policy of patient waiting and active interference. It is not always easy to decide the question. The points upon which a decision may be reached are the general condition of the mother, the reaction of the womb after the first child is born, the presence or absence of active or passive bleeding, and, finally, the state of the unborn child after repeated examinations at short intervals. In general it is best to withhold interference until some definite indications arise.

Spontaneous Facial Paralysis of the Newborn.—The majority of authorities hold that this condition is usually of traumatic origin due to the employment of forceps during parturition. O. MACÉ, (L'Obstétrique, Dec., 1901) claims that there are two varieties of facial paralysis in the newborn—one due to trauma and another which is congenital. The first class results from forceps which produce pressure either directly or indirectly from edema, blood tumors or compression at some portion of the pelvic canal by a tumor. Again, the force of the uterine contractions upon a head passing through a contracted pelvis may be sufficient to cause crushing of the bony canals through which the facial nerves pass out of the interior of the cranium, thereby producing permanent injury to the nerve. Or this same factor may produce cerebral hemorrhage at the point of exit for the nerve. Under the second group he places those caused by anomalies in development of the nerves or their ganglia. Adherence of the amnion is another etiologic factor in causation. Writers have described cases in which there was atrophy of the nerve or complete absence of it on one or on both sides. Congenital facial paralyses are in general unilateral. They are partial or complete and are peripheral or central. Cases of nuclear origin are most interesting. Cabannes has described both unilateral and bilateral forms. In general the prognosis in congenital facial paralysis is good. By the use of the continued electric current in some cases and the interrupted in others, one can hope for recovery if the causation be not an arrested development. The time required is between two or three days or a month.

Surgical Treatment of Dysmenorrhea.—In the treatment of dysmenorrhea the dual relationship between the general health and the generative organs must be constantly kept in mind, says H. D. FRY (Amer. Gyn. and Obst. Jour., Dec., 1901). Impaired general health and normal pelvic organs, stenosis of the cervix, endometritis, displacements of the uterus, diseases of the appendages with impaired general health, or a combination of the foregoing conditions are the usual characteristics found in painful menstruation. In the latter two conditions surgical interference may or may not be indicated. If the pain is acute or is limited to the first day or two, with relief in the intermenstrual period, surgical treatment is not demanded; but if the pain extends over a number of days surgical treatment is indicated. Goodell advocated the method of rapid dilatation and this was supplemented by curettage. Then the application of caustics to the denuded surface with drainage was added and still the results were not satisfactory. Later Dr. Gill Wylie employed a drainage plug held in position by a Smith pessary for six days. The author follows this mode of procedure, but keeps the plug in for from three to six weeks and confines the patient to her bed for two or three weeks. If no discomfort is experienced, the patient is permitted to go about with her plug *in situ* for several weeks longer. The hard rubber drainage tube causes the formation of a cicatricial ring of tissure at the point of constriction which ensures patulency. In a few cases the plug causes pain and must be removed sooner than the specified time. When there are fibroids or displacements or even painful ovaries the author follows out this method of treatment and later performs a second operation to relieve the other existing conditions.

The Angiotribe.—The practical application of the angiotribe will suggest itself to every thoughtful surgeon, says J. N. ELLIS (Amer. Gyn. & Obstet. Jour., Dec., 1901). It is useful whenever it would otherwise be necessary to ligate *en masse* a vascular pedicle, reducing its bulk to the least possible dimensions consistent with safety, and, by the action of the angiotribe alone, or with the aid of a supplementary ligature of fine catgut, assuring perfect primary and permanent hemostasis. The possibility of a secondary hemorrhage with the use of the angiotribe alone is considered by some surgeons, but the author has never seen the accident in his personal experience. Microscopical ex-

amination of the compressed tissue by Thumin shows that the integrity of the compressed tissue is not destroyed, but that it is simply compressed; proving that necrosis and sloughing do not take place, but that a gradual process of revitalization is the result. It is impossible to formulate a fixed rule as to when it is necessary to supplement the action of the angiotribe with the precautionary ligature. This must be determined by judgment, observation and experience. The amount of force and the time of its application depend upon the density of the tissues involved, the size of the pedicle and the object it is desired to attain. The angiotribe is inapplicable to control hemorrhage or secretions or wounds of such friable organs as the liver, spleen and kidney, but its utility in retro- and transperitoneal nephrectomy and in splenectomy is evident. In vaginal hysterectomy angiotripsy is particularly advantageous. In supravaginal hysterectomy it can be used to crush the broad ligaments and also the cervix at the point of amputation. In removal of approximately normal adnexa or excision of small ovarian or intraligamentous cysts it produces absolute hemostasis. It is unnecessary and unjustifiable in appendectomy if either the McBurney or Dawbarn operation can be employed. The use of the angiotribe is by no means limited to operations within the abdominal and pelvic cavities. In thyroidectomy it is of excellent service. It can be employed in the removal of pedunculated keloids and for compression of the spermatic cord in castration. The author uses it to amputate in elephantiasis of the labia, clitoris or scrotum. As a substitute for the pile clamp, in the operation for hemorrhoids, Dr. Robert T. Morris tells the writer that it not only destroys the vessels, but also the nerves, so that the patient is unaware that an operation has been performed. It is also useful in removing portions of the rectum in prolapse or in any of the methods of proctotectomy and proctosigmoidectomy. It is a simple and an excellent means of performing circumcision in infants and in controlling the hemorrhage at the frenum in circumcision of adults.

Surgical Intervention in Dystocia from Fibroids.—The following conclusions are reached by ANDRÉ BOURSIER (Annales de Gyn. et d' Obst., Dec., 1901) in regard to the various operations and indications for operations in this condition: (1) Fibromata cause in many instances vicious fetal positions and form a mechanical obstacle to the downward passage of the fetus. (2) This is more often the case when the fibroma is either at the lower portion of the uterus or at the cervix. (3) If the fibroma is diagnosed it may be removed after or even during labor. (4) Dystocia from causes in fetus or uterus justifies surgical intervention. (5) Fibroma of the vaginal region should be removed by the vaginal route. (6) Those of the abdominal type should be operated upon suprapubically. (7) Symphyseotomy is to be absolutely rejected in this condition. (8) Conservative Cæsarian operation is justifiable in certain exceptional cases. It is a better operation than the complete effacement by myomectomy. (9) The Porro operation must be reserved for certain particular limited cases. (10) Complete hysterectomy is radical and truly curative and is the method of choice to be employed whenever possible, be the child living or dead.

Use of the Uterus in Cystocele Operations.—On account of the unsatisfactory results which follow the various modifications of colporrhaphy, J. BRETTAUER (N. Y. Med. Jour., Jan. 11, 1902) recommends the use of the uterus in increasing the strength of the anterior vaginal wall, an operation which has heretofore been performed a few times. An incision is made through the anterior vaginal wall extending backward from the urethral opening; the parts are separated; the uterus is markedly anteverted and brought down into the wound, thus lying between the anterior vaginal wall and the bladder. It is then stitched in place and a part of the vaginal wall usually resected before it is sewn up. Of course, this operation is suitable only in women beyond the child-bearing period. The results in three cases seem very satisfactory.

Ventrosuspension of the Uterus.—On account of disastrous results which sometimes follow fixation of the uterus to the anterior abdominal wall, especially during pregnancy and labor, numerous methods have been devised to allow a certain degree of mobility and yet suspend the uterus in its normal position. The Alexander operation is difficult, requires considerable training and makes no provision for the bound-down uterus, which is the one usually requiring interference. D. T. GILLIAM (N. Y. Med. Jour., Jan. 4, 1902) has devised an operation which he believes proves efficient. An incision, three inches long, is made in the median line; the adhesions are broken up, and, with the finger behind the broad ligament, the round ligament is caught up at a point an inch and a half from the uterus and a thread passed around it. The other ligament is similarly treated. The skin and subcutaneous tissue are retracted from the fascia and muscular layers of the abdominal wall and a perforation is made through the fascia and muscular layers, beginning half an inch from the wound and passing downward and outward into the peritoneal cavity. Forceps are passed through this opening and by means of the thread the round ligament is drawn out through the perforation and stitched to the fascial layers. The uterus is thus not fixed, but rests easily and naturally against the bladder, and varies in position with the condition of that organ and the rectum. The normal course of a pregnancy is in no way interfered with.

Spurious Abortion.—During the last few years there have been reported three cases which purported to be instances in which, after a few weeks of amenorrhea accompanied by enlargement of the uterus, the formation of the decidual membrane and symptoms of pregnancy, this decidua was thrown off and no ovum was found. In two of these cases an ectopic gestation was suspected and an operation done, but no evidences of any ovum was discovered. It has, therefore, been supposed that these symptoms and signs of pregnancy were not due to the presence of an ovum, but that there was some other stimulating factor. W. E. FOTHERGILL (Med. Chron., Dec., 1901) had the good fortune to see such a case and after a thorough microscopical search a small, shriveled ovum, not more than five or six days old, was found. This had undoubtedly been the exciting cause in the production of the signs of pregnancy, but could be very easily overlooked. It is thought that all the reported cases have been similar ones and that the ovum could be found, perhaps, only after a most diligent search. In order to exclude extrauterine pregnancy it is, however, necessary to be sure that such an ovum is present in the decidual membrane.

SURGERY.

Cases of Rupture of the Spinal Ligaments.—In the long bones oftentimes fractures and luxations will occur before the ligaments rupture. That this is not so generally true in the case of the bones of the vertebral column and their ligaments is the belief of C. A. PAINTER and R. B. OSGOOD (Boston Med. and Surg. Jour., Jan. 2, 1901). These writers present an analysis of all the cases in the literature classified as injuries to the spine accompanied by ruptured ligaments. In addi-

tion they report four cases of injury to the spine in which there was kyphosis without tuberculous or other disease of the vertebræ, in which there were symptoms of pressure on the cord, which symptoms were relieved, entire functional restoration following a few months after treatment with plaster or leather jackets was begun. The force which commonly produces rupture of the spinal ligaments is applied either from above downward upon a flexed vertebral column, or from below upward. In one case muscular exertion alone was responsible for the rupture. This case was examined postmortem, and it was shown that there was no fracture nor dislocation present. The authors believe that nerve-pressure symptoms may occur from a simple flexion of the vertebral column; in their own four cases flexion of the column would bring on pressure symptoms which could be immediately relieved by hyperextension; there was no apparent lateral deviation of the spinous processes and nothing to suggest forward displacement of the vertebræ at the seat of the kyphos. Recovery is promoted by prolonged rest in a position which favors the repair of the ruptured ligaments.

Craniotomy.—A simple, rather rapidly operating instrument for opening the skull has been devised by J. SCHOEMAKER (Centralbl. f. Chir., 1901, No. 50.) The usual four holes are bored after the method of Doyen. Into two opposite holes the instrument is inserted and within a minute or a minute and a half a cut up to about 10 cm. long can be made. The instrument consists in a cutter held in a traveler and kept from twisting by a brace on either side. The traveler has a vertical handle for steadying it, runs along a shaft, and is advanced by a screw propelled by a ratchet and pawl in the right hand while the left grasps the handle. Counterpressure against the advance of the cutter is gained at the other hole where the end of the shaft suitably bent is received. Without chipping or splitting, the cut steadily proceeds with rapidity enough for all practical purposes.

Covering Defects in the Skull.—Absence of the bone-covering of the brain following accident or operation is a serious matter for the patient. For the covering of large defects of the skull through injury or operation after the method of Müller-König, the following rules are emphasized by A. DEHLER (Arch. f. klin. Chir., 1901, B. 65, H. 1.) They must be covered by secondary implantation because the wound must be brought to a condition of absolute asepsis, so that the pus-processes so fatal to life and so damaging to a healing of the bone-flap may be avoided; (2) because the splinters of bone broken out by the injury cannot be replaced evenly and satisfactorily as a rule, at the primary operation; (3) because if the granulations in the neighborhood of the wound have grown upward to a suitable distance, they will much better support and nourish the new bone-flap and fill up the whole cavity; (4) because by a secondary implantation a good opportunity is given the patient to recover from the first operation and gain strength enough to accept the new bone tissue. A further technic is that all scar tissue be removed as fast as possible without damage to the brain over the area of implantation. The margins of the bone defect should be freshened and the flap consisting of periosteum and bone should be somewhat larger than the defect itself. In determining the place of this flap it is necessary to reckon with a later displacement by the contraction of the scars. The larger the flap the greater is the importance of a large artery in its base to secure full nourishment. It is not necessary to have in the base of the flap a thin layer of bone cortex with the periosteum attached. It is worth while to see that between the transplantation of this combined flap and a hairy skin-flap a sufficient time shall intervene so that the former shall be fully in place before it is disturbed at all to accommodate the latter.

Ureteral Anastomosis.—The necessity for this operation arises at unexpected moments during laparotomies by the vaginal and abdominal routes. Every surgeon must be well informed, therefore, as to the various ways of uniting the severed ureter. W. K. TURNER (Annals of Surgery, Dec., 1901) reports a case in which the usual method of making the union was reversed in the following manner: While removing the uterus for complete prolapse of that organ and of the vagina with the bladder, the ureter was divided about two inches from the bladder through having been mistaken for a vein. On investigation the distal portion was found to open in the bladder and urine dripped slowly from the other end. Van Hook's method of union was at once determined upon, but in bringing down the proximal end it was split upward for one inch. Thus, the interval between the two ends and the corresponding difficulty of uniting them were increased. The advisability of opening the abdomen for carrying on the operation was now considered and rejected. Since the upper segment was already split and the vagina already widely open, he decided to reverse the method of Robinson by implanting the lower into the upper end. A curved needle with a ligature was passed through the wall of the lower segment, thence into the canal of the upper portion for an inch above the split and through the wall of the ureter and the surrounding structures on to the peritoneal surface. The needle was then taken off and the suture caught with a pair of forceps; the needle was then threaded on the other end of the suture and the steps were repeated as before. By manipulation and traction the lower end of the severed organ was drawn into the upper, and there tied. Fine sutures now completed the anastomosis and the joint was re-enforced by a covering of peritoneum; the vagina was packed with gauze and the patient put to bed in a very good condition with orders for strict attention to the dressing for leakage. Eight hours after the operation eight ounces of urine were withdrawn by catheter, which suggested that the repaired ureter was doing its duty. One year has elapsed since the operation and the patient is perfectly well.

Thyrotomy for Infraglottic Laryngitis.—A case exhibiting difficult respiration and altered voice from a subglottic growth is reported by G. MASINI (Gazz. degli Osped., Dec. 8, 1901). Laryngoscopic findings were the following: Rima glottidis narrowed to three millimeters and irregular in outline from turgescence of the vocal cords, the latter being red and immobile; arytenoids showed limited motion on inspiration and attempts at phonation; below the cords was seen a pale red papillomatous growth, filling the interligamentous space as far as the posterior third of the aperture between the cords. Other measures for the relief of the patient's respiratory distress having failed, thyrotomy was performed under chloroform, the usual technic of laryngeal surgery being followed. After the cavity of the larynx was opened, a considerable portion of the tumefaction was removed by curettage; induration of the tissues in the intercartilaginous region and the fear of injury to the crico-arytenoid articulation prevented entire removal of the growth. The wound was closed by suturing the thyroid cartilage, a cannula being left in position; the latter was permanently withdrawn on the thirtieth day as the respiratory function was fully reëstablished. The patient has been under observation for nine months, there has been no recurrence of respiratory trouble and the voice has been almost entirely restored, although the laryngeal picture still shows

some deviations from the normal. Unfortunately a microscopical examination of the tissue removed was not made.

Cervical Ribs.—In 1895 Küster collected 139 cases of ribs developing from the transverse processes of the seventh cervical vertebra. Among these cases 28 were diagnosed *intra vitam*, and of the latter number about half gave pronounced clinical symptoms. M. BORCHARDT (Berl. klin. Woch., Dec. 23, 1901) describes four cases of this character recently operated upon at Von Bergmann's clinic. The circulatory disturbances produced by supernumerary ribs are due mainly to the neighborhood of the subclavian vessels. Operation is indicated when a progressive aneurism results, inasmuch as the continued growth of the latter is dangerous to life. In numerous instances syringomyelia is an associated condition. In cases in which the chief symptoms are due to pressure in the brachial plexus and in which electrical treatment fails to give relief, operation may be undertaken with excellent prospects of cure. If, however, in addition to brachial-plexus symptoms, paralysis of the recurrent nerve and widespread disturbance of sensation be present, general disease of the nervous system is to be predicated.

Diagnosis Between Acute Appendicitis and Atypical Typhoid Fever.—Fortunately, operations in the initial stages of typhoid fever are as a rule well borne, and it is the initial stages of atypical cases of typhoid that most frequently suggest appendicitis. When a late perforation in an unrecognized typhoid, manifested by pain, tenderness, rigidity and other symptoms of general peritonitis, is operated upon for supposed appendicular peritonitis, the prognosis is very grave. In acute abdominal lesions, considered from the surgical point of view, four symptoms are of especial weight. These symptoms, writes M. H. RICHARDSON (Boston Med. & Surg. Jour., Jan. 9, 1902) are pain, tenderness, muscular rigidity and fever. The absence of any one of these symptoms throws doubt upon the diagnosis of peritonitis. No lesion of the appendix sufficiently extensive to affect the peritoneum can possibly exist without either pain, tenderness, rigidity or fever. If pain, tenderness and fever are present without rigidity of the overlying muscles, a peritonitis localized about the appendix is at once excluded, though an intra-appendicular lesion may be present. Pain and rigidity without tenderness would throw serious doubt on the diagnosis of appendicitis.. The absence of fever alone, the other three symptoms being present, would form the least doubtful combination, for absence of fever is sometimes conspicuous in really serious local peritoneal infection. The absence of rigidity must put the surgeon on his guard; he must account for the absence of this symptom before he opens the abdomen. In such a case exhaustive inquiry into the history of onset, previous malaise, prevalence of typhoid in the community and history of the pain itself, must be made. Careful examination of the blood is imperative. Without pain at some time in the course of the disease there can be no acute surgical lesion of the abdomen. The absence of rigidity or tenderness in the presence of fever and pain usually signifies typhoid, or simple continued fever. If constitutional signs in a doubtful case are severe, but local ones hard to establish, Richardson would postpone operation; but when the abdominal symptoms—pain, tenderness, rigidity, with or without distention—call loudly for operation, he would open the abdomen in spite of the possibility of typhoid.

X-ray in Bone Diseases.—The important aid which the Roentgen rays afford in the differential diagnosis of osteomyelitis, osseous cysts, osteosarcoma and other osseous lesions is duly emphasized by CARL BECK (Jour. Amer. Med. Assoc., Jan. 4, 1902). Osteomyelitic foci can be distinguished by their light shade in the midst of the dark shadow of the cortex. The regularity of the cortical line and the external proliferations distinguish it from osteosarcoma and the absence of distention from osseous cyst. Necrosis and other later stages of inflammatory processes can be distinctly represented and sequestra also made out. It is somewhat more difficult to diagnose inflammatory processes in the joints. In acute rheumatism and inflammatory processes due to infection the integrity of the articular outlines is well marked, and in the latter case the distention of the joint by serum or pus can be detected. In chronic rheumatic processes the articular bone line appears irregular. In arthritis the contours of the bone epiphyses are irregular and the deposits are recognizable as light shadows of the deformed epiphyses. In tuberculosis of the bones and joints differentiation by the X-ray is readily possible from other lesions which clinically resemble it. The walls of an intra-osseous focus appear thickened, portions are translucent and their contours irregular. The articular outlines of a joint are irregular and appear diffuse, cloudy, and sometimes shaggy. Cheesy foci appear translucent in later stages, the cortex is sometimes destroyed and leaves the impression of having been scooped out with a gouge. In tuberculous coxitis, the upward dislocation of the femur and the separation of its head in the acetabulum can be readily recognized. The only marked sign of tuberculous spondylitis consists sometimes in the presence of an abscess below Poupart's ligament, the nature of which can be interpreted only by the existence of vertebral changes. The skiagraph of a periosteal sarcoma is characteristic, since it shows fine, spiculated trabeculæ that radiate from the surface. In the soft myelogenous variety an absence of osseous tissue is seen, only small fragments being left here and there. The hard myelogenous variety shows more osseous tissue than the former, but its outlines are very irregular. In chronic osteoperiostitis, the walls appear irregular, but the irregularity is one-sided and exteriorly; in tuberculosis the shade would be cloudy or baggy; in osteomyelitis the cortex shows nearly normal outlines. The skiagraphic expression of syphilis is marked in the congenital form by the presence of large ossified areas in the epiphyses that would appear translucent in their normal cartilaginous condition. On the other hand light areas are noted in the diaphyses as an expression of insufficient calcareous deposition. Gummata show regular, light shaded foci, which disappear upon administration of potassium iodide. Osseous cysts may easily, if the same clinical signs are present, be confounded with sarcoma. In cyst, however, the cortex usually appears narrow, well marked, and regular. The fluid center appears translucent and the adjacent epiphyses are normal.

Traumatic Intracranial Lesions.—The difficulty of determining the exact intracranial condition after an injury makes the indications for operations rather indefinite and dependent largely upon the surgeon's diagnostic ability. C. PHELPS (N. Y. Med. Jour., Jan. 11, 1902) believes that even a rational suspicion of the existence of a simple fracture, as in case of a hematoma with a history of considerable violence inflicted upon the head, with or without concurrent symptoms of intracranial lesion, demands explorative incision. Unsuspected osseous depressions and most serious, yet remedial, complications have thus been discovered and relieved. It entails no conceivable danger. If the fissure is found closed, further investigation is not warranted unless symptoms indicate it. An open or comminuted fissure always demands investigation. In dealing with hemorrhages and brain injuries the problem becomes

more difficult. The supradural form of hemorrhage (between the dura and bone) is the one which offers the best prospects for success and fortunately can usually be diagnosed. With or without primary unconsciousness, an interval of consciousness most frequently precedes its later loss. This fact is the most essential point in diagnosis and in conjunction with a subnormal or slightly elevated temperature can hardly be misinterpreted. A man suddenly dazed by a blow or a fall, who goes home thinking the injury is trivial and later develops a progressive stupor and coma, surely has an intracranial hemorrhage and almost as certainly it is of a supradural form. Subdural hemorrhages and brain injuries are less easily diagnosed, and the results of treatment are so uncertain that interference is seldom indicated.

PATHOLOGY AND BACTERIOLOGY.

Reagent for Iodine.—To determine the presence of iodine in the various secretions, G. DENIGES and J. SABRAZES (Münch. med. Woch., Dec. 17, 1901) recommend the following: One gram of starch is mixed with 10 c.c. of cold distilled water; then 40 c.c. of boiling water is added and the whole boiled for from one to two minutes; on cooling, 0.5 gram of nitrite of sodium is incorporated with the mass, which is then brushed on suitable paper. When this is dipped into the liquid to be examined and then touched with a glass rod moistened with 10-per-cent. sulphuric acid it forms a very delicate, stable reagent for iodine.

Pathology of Cholelithiasis.—In an excellent article on the pathological lesions and the determining causes of cholelithiasis A. S. MASCHRE (Cleveland Jour. of Med., Nov., 1901) reviews the literature upon the subject, showing that Naunyn was the first to place the subject on a scientific basis by establishing the fact that cholesterin and bilirubin-calcium are the most important constituents of gall-stones, and, furthermore, that the amount of these stone-forming substances was entirely independent of the general metabolism and diet. Kausch found no increased amount of cholesterin in the bile in any disease except cholelithiasis, and it is now generally accepted that cholesterin is the product of the mucous membrane of the biliary passages. It also results from tissue degeneration elsewhere, but its presence in the bile can be traced to degenerated biliary epithelium. Similarly the lime proportion of the bile has been found to be independent of the diet and proportion of lime salts in the blood, but depends on the production of mucus by the mucosa of the biliary passages. Cholesterin is found only in those ducts which have the same kind of epithelial cells as has the gall-bladder. Thus we see that some pathologic process of the mucosa leading to degeneration of the epithelial cells is the prime factor in causing gall-stones. Stagnation of the bile was thought to be an efficient cause, but it has been found that stagnation alone is not injurious to the mucosa. Normal bile is sterile, but when the flow becomes delayed bacteria are frequently present, especially the bacilli coli and typhosus, and these are often found within the gall-stones. Thus it happens that age, sex, pregnancy, clothing, sedentary life, etc., which usually are considered predisposing factors, serve only to bring out one important fact, that anything that favors stagnation of bile favors the occurrence of lithogenic catarrh. Cholelithiasis is then a local disease not in any way dependent upon constitutional or nutritive disturbances. Cholesterin of gall-stones has never been in solution in the bile, but has been formed from local epithelial degeneration resulting from catarrh. As cause of the catarrh any factor that favors stagnation of the bile and thus renders infection possible is considered the predisposing influence.

Elimination of Toxins in Typhoid Urine.—Observation has shown that the urine is one of the most efficient excretions for the elimination of toxins in typhoid fever. All means, therefore, which increase the urinary toxin output in this disease are of value. L. INGELRANS and M. DEHON (Comptes Soc. Biol., Dec. 6, 1901) have submitted this question to experimental research. They selected for study eight cases of typhoid fever. Four were treated by warm baths, two by cold baths and two were given large quantities of water internally, but no baths or antipyretic treatment of any kind. The urine of these patients was gathered daily and inoculated intravenously into rabbits. Thus its toxic effect was noted. They found that in those treated by warm baths the toxicity of the urine remained stationary or diminished day by day. Those treated by cold baths showed a gradual increase in the amount of toxins present in their urine, except when the temperature was considerably elevated. The urine toxicity showed a notable increase in those to whom abundant amounts of water were administered and the urotoxic coefficients were higher in this class than in either of the other two. It is thus seen that the abundant consumption of water is of great avail in ridding the system of toxins in typhoid fever.

Thyroid Gland in Infectious Diseases.—The study of the histological changes present in the thyroid gland in infectious diseases is of comparatively recent origin. The most recent work upon this subject comes from S. KASHIWAMURA (Virchow's Archiv, B. 166, H. 3). He examined 55 thyroids of which 38 were taken from persons dead of infectious diseases. As a means of comparison 17 were taken from persons in whom death was due to other causes. Of the infectious diseases thus studied 6 were diphtheria, 6 scarlet fever, 5 miliary tuberculosis, 5 measles, 4 fibrinous pneumonia, 3 puerperal fever, 2 typhoid fever, 2 septicemia and 5 pulmonary tuberculosis. Only those thyroids were selected for examination which showed macroscopically no extensive hyperplasia, since in such glands the normal hyperplastic changes might lead to confusion. The connective tissue of the gland is increased in amount in infective diseases; especially is this the case in tuberculosis, typhoid fever and diphtheria. In the majority of infective diseases the interstitial lymph-vessels show an accumulation of colloid material. By the employment of Von Gieson's stain it is possible readily to differentiate this from hyaline degeneration. As such colloid degeneration is found in connection with non-infective processes its appearance here is not characteristic. The gland substance itself is not characteristically altered. Some authors have claimed that the presence of exceedingly small follicles in this gland is peculiar to infective processes. Such is, however, not the case, for, while in many instances these were found, in many others no such condition was observed.

Spirillum and Bacillus of Vincent in Gingivitis.—An unusual case of gingivitis is reported by VERGER and ABADIE (Jour. d. Méd. de Bordeaux, Dec. 15, 1901). The following is the clinical résumé: Patient with no history of syphilis or ingestion of mercury; soreness of gums surrounding lower incisors first noticed; two weeks later grayish-white line at edge of lower gums, the latter being red and swollen; lavage with weak solution of bichloride ordered; about a week later patient awakened in night by hemorrhage from the mouth, about half a pint of blood being lost; the following night a second hemorrhage, but less abundant; pseudomembrane gradually extending about

remaining lower and upper teeth; membrane easily removed, showing deep ulcerations beneath. Microscopical examinations revealed spirillum and the authors call attention to this case as showing the severity of lesions caused by these agents, and also as the only one on record in which the lesions were confined to the gums. Treatment by chlorate of potash was found specific.

Action of Gastric Juice on the Bacillus Tuberculosis.—From time to time since 1883 various observers have investigated the action of the gastric juice upon the bacillus tuberculosis. Most of the work which has been done along this line, however, has been carried on by the employment of an artificial gastric juice and is therefore not entirely conclusive as to the results which occur in man under like conditions. In order definitely to solve this problem G. CARRIÈRE (Comptes Soc. Biol., Dec. 20, 1901) has instituted a series of three experiments. In the first series he employed an artificial gastric juice composed of water, pepsin, hydrochloric acid and sodium chloride. Into this mixture he introduced tubercle bacilli obtained from various sources, as sputum, tuberculous organs and pure laboratory cultures. After various periods of time this inoculated juice was injected into guinea-pigs and the results were noted. He found that up to twelve hours no effect was produced upon the bacilli by their presence in this fluid. After this time they became attenuated but were not killed. The greater the proportion of pepsin and hydrochloric acid in the artificial juice the more marked was the attenuation. In the second series the same technic was instituted, but normal gastric juice from man was used. The same results were obtained as in the first series, but the attenuation was less certain. Sometimes no attenuation was observed even after long contact. In the third series tubercle bacilli were fed to guinea-pigs. These were killed after a varying time and with the gastric contents obtained other guinea-pigs were inoculated. In every case tuberculosis was thus produced more or less rapidly. This work is very conclusive that under normal conditions the gastric juice is without appreciable effect upon the bacillus tuberculosis.

Internal Secretion of the Kidney.—The idea that the kidney possesses an internal secretion was first advanced in 1855 by Claude Bernard. Since that time considerable attention has been paid to the subject and many arguments have been advanced *pro* and *con*. The most recent work comes from ALEX. N. BITZOU (Jour. Phys. et Path. Générale, Nov. 15, 1901). Working upon the assumption that if the kidney produced an internal secretion it should be found most abundantly in the venous blood of that organ, he selected rabbits and under anesthesia, observing all antiseptic precautions, collected the blood from the renal veins. This was then defibrinated and preserved. Rabbits were then subjected to experimental uremia by the means of nephrectomy. Some of these were inoculated with various doses of the renal blood obtained as just described, and others were maintained as controls. He found that those nephrectomized animals which were not thus inoculated in a very short time died of uremia, while in those that were inoculated the uremic symptoms were ameliorated and delayed thereby and life prolonged. Such lived from one to two days longer than the uninoculated. As the result of this work he believes that the kidney produces, as do the liver, pancreas, thyroid and suprarenal glands, an internal secretion, that the venous blood of the kidney is richer in such a secretion than the arterial blood of this organ and that this secretion is of great utility in that it is able to suppress for a certain time the phenomena of experimental uremia.

Action of Gastric Juice upon Cholera Vibrio.—As an aid to the solution of this problem SCHULTZ-SCHULTZENSTEIN (Clblt. f. Bäk., Dec. 11, 1901) reports the following experimental facts. In pure water containing .05 per cent. of acid the cholera vibrio is destroyed in six minutes. Water containing pepsin and traces of acid reduces the vitality of these organisms and produces in them granular formations. Pepsin and hydrochloric acid together kill the vibrio if .019 per cent. of the acid is present. Six hundred cubic centimeters of water taken into a fasting stomach contain in from twelve to fifteen minutes in 75 per cent. of cases an acidity corresponding to .03 per cent. of hydrochloric acid and such water kills cholera vibrio in fifteen minutes. In 25 per cent. of cases the acidity produced is less than this. In one instance in which .0142 per cent. of acid was present the bacilli were not killed in one and one-half hours. Fluids containing albumin or peptone or both require an acidity of .097 to .217 per cent. and one hour's contact is necessary for the death of these organisms.

Pseudodiphtheritic Bacilli.—Much has been written during the past few years with respect to the importance of pseudodiphtheritic bacilli. CH. LESIEUR (Jour. Phys. et Path. Générale, Nov. 15, 1901) reviews the literature upon this subject and also the means for differentiating the true from the pseudodiphtheritic organism. He reports the critical study of thirty apparently pseudodiphtheritic bacilli. Of these 60 per cent. subsequently proved to be true attenuated diphtheritic organisms, 20 per cent. were also probably in this class, 10 per cent. were in all probability of the pseudodiphtheritic variety, and only 10 per cent. were absolutely proven to be of the latter species. As the result of this work he believes that in the practical management of diphtheria from both therapeutic and preventative standpoints the existence of pseudodiphtheritic bacilli may be ignored and that all organisms which give the characteristic staining reaction when grown upon solidified serum at 35° to 37° C. for fifteen to twenty hours should be considered as true diphtheria organisms capable of producing the disease.

Tubercle Bacillus and Associated Micro-organisms.—To determine the influence of associated micro-organisms upon the tubercle bacillus, V. DE CIGNA (Gazz. degli Osped., No. 149, Dec. 15, 1901) placed in the thermostat specimens of sputum containing tubercle bacilli both with and without other bacteria. In each case the specimens were left in the thermostat for fifteen days, daily bacterioscopic examinations being made. In specimens showing absence of organisms other than the tubercle bacillus, or their presence in small numbers, there was rapid and marked increase in the number of Koch's bacilli; such specimens were at no time fetid. Specimens containing associated bacteria in quantity showed a daily decrease, degeneration, and final disappearance of tubercle bacilli with proportionate increase in the number of other organisms. Further experiments suggested that the organism most antagonistic to the specific bacillus and contributing most markedly to its destruction was the bacterium coli. Bacterioscopical and clinical observation has demonstrated that in tuberculous patients implantation of a fetid bronchitis or pulmonary gangrene upon the tuberculous condition has caused a gradual disappearance of bacilli from the sputum, with subsidence or obliteration of clinical symptoms of the original disease. The fact that the fetor of sputum in these conditions is due to protei and bacterium coli suggests the possibility of utilizing such agents or their products as therapeutical remedies. Further, the author believes, with other investigators, that, the sputum being the medium most

conducive to multiplication of the tubercle bacilli, remedies which control excessive secretion tend to check increase in the bacilli; thus, the antitoxic value of serumtherapy is reinforced by its influence over catarrhal processes.

Gonococcus in Blood.—The demonstration of the gonococcus in the blood-stream was a matter of difficulty until recently. A successful attempt is reported by E. UNGER (Deut. med. Woch., Dec. 19, 1901) in a case of gonorrheal urethritis complicated by an arthritis involving the ankle, hip, and wrist joints. Aspirations of blood from the median vein when mixed with bouillon or blood-serum showed on culture colonies of diplococci which decolorized by Gram stain. The author advises three precautions in the use of this method for diagnosis: (1) Use fairly large quantities (5 c.c.) of blood, so as to obtain as many bacteria as possible; (2) dilute the blood considerably, so as to decrease its bactericidal properties; (3) select a fluid culture medium, which permits rapid, unresisted development.

MEDICINE.

Undescribed Symptom of Carcinoma.—The presence of very small angiomata of the skin in cases of carcinoma in various parts of the body has been frequently met with by D. LESER (Münch. med. Woch., Dec. 17, 1901). The changes in the skin consist in bright red or bluish-red areas, varying in size from pin-point to lentil, and slightly elevated above the surface. They are sharply circumscribed, do not disappear on pressure, and occur most frequently on the trunk, rarely on the extremities and almost never on hands and feet. Sometimes they are most frequent in the neighborhood of the tumor and the microscope shows dilated and proliferated capillaries. Of 50 cases of carefully examined, undoubted cases of carcinoma, these angiomata were absent in only one. In normal persons and those afflicted with other diseases they occasionally occur, but then only in advanced age and much fewer in number. The author has had no experience as to their frequency in sarcoma or as to their value in the early diagnosis of carcinoma before the presence of other signs.

Methylene Blue as an Indicator of Renal Function.— Information of value as to the condition of the kidney can be obtained by injecting 5 centigrams of methylene blue subcutaneously and then allowing the patient to urinate at frequent intervals. The kidneys perform their function normally if the excretion begins after one-half hour, reaches its maximum in three or four hours to disappear in from thirty-five to fifty hours. It is not sufficient merely to view the urine through transmitted light; to detect small quantities it must be shaken out with chloroform. K. ASSFALG (Zeitsch. f. klin. Med., Vol. 44, Nos. 3 and 4) has investigated various diseases and finds that in chronic interstitial nephritis the excretion is prolonged sometimes up to nine days; in severe chronic alcoholism the excretion begins late and ceases soon; in uncompensated heart disease there is no change as to time that does not belong to the normal, but, owing to the concentration of the urine, its color soon becomes intense; in bichloride poisoning no aberrations were noted; the same was true of cirrhosis of the liver, while arteriosclerosis and traumatic neuroses gave changes similar to those of interstitial nephritis. For the diagnosis of parenchymatous nephritis the method is inefficient. The exact site of excretion in the kidneys is still a disputed point.

Enlargement of the Hands and Feet.—Several cases of symmetrical enlargement of the hands and feet, depending upon increase in size of the skin, and with this drum-stick deformity of the end-phalanges and nails, intermittent edema, exacerbating pains and tenderness of the nerve-trunks, are described by H. HIRSCHFELD (Zeitsch. f. klin. Med., Vol. 44, Nos. 3 and 4). It was possible in only one case to ascertain the primary pathological lesion in the form of an interstitial neuritis of the larger nerves. The author cannot classify these cases among the *osteo-arthropathie hypertrophiante* of Marie, since the Roentgen rays showed no thickening of the bones, but he does not deny the close association between this and the lesion under discussion, which he names dermatohypertrophia vasomotoria. In all cases described in the article there was present a primary lesion accompanied by disintegration of tissue. The casual connection between this and the hypertrophy, however, remained obscure.

Typhoid Spine.—The history of an interesting case is contributed to the literature of this subject by W. J. TAYLOR (Phila. Med. Jour., Dec. 28, 1901). Since the appearance of Gibney's original paper in which the "typhoid spine" is described as a perispondylitis, various opinions have been advanced as to its true nature. Three conditions may arise after typhoid referable to the spine: First, the true perispondylitis of Gibney; second, a painful condition of the muscles due to strain or injury; third, the hypersensitive neurasthenic spine. Although most authors do not recognize these distinctions and think that they all border on neurasthenia, the writer believes that in certain cases there is a definite well-pronounced pathological condition involving the periosteum, ligaments, and deep fascia of the spine—a distinct surgical sequel of typhoid fever. It is recognized that the typhoid bacillus may cause a periostitis which resolves without suppuration, although the latter often occurs. As this has been observed to occur in the tibia, why may it not occur in the spine? In the case cited by the author, an adult patient had an ordinary attack of typhoid lasting nine weeks. A few days after getting up the heavy dull pains in the back began. Examination showed a slight prominence of the spine to the right of the sacrum and in the lumbar region, with numbness extending along the right thigh. Patient was kept in bed for nearly four months on ordinary tonic treatment. Improvement took place rapidly and three months later the spine was perfectly flexible and the thickening had disappeared.

Clinical Import of Arteriosclerosis.—In a paper dealing with abnormal conditions of the viscera depending upon arteriosclerosis, J. G. URUENA (Gac. Med. d. Mexico, Dec. 15, 1901) calls attention to the importance of examining the arterial condition, especially in patients presenting cardiac symptoms, as the heart stimulants which might be valuable in valvular disease would be of the greatest disadvantage to the patient with inelastic arterial walls. The author urges the employment of the classical remedies for this condition, *i.e.*, potassium iodide and nitroglycerin; the former administered for twenty days by the mouth in 50-centigram doses, the latter ten days in 3-minim doses. With systematic perseverance in this method of treatment, cerebral distress, cardiac palpitations, and murmurs have subsided when due to peripheral resistance from arteriosclerosis.

Traumatic Apnea.—Traumatic apnea is a condition rarely seen in the living. In a case reported by H. L. BURRELL and L. R. G. CRANDON (Boston Med. & Surg. Jour., Jan. 2, 1901) the patient sustained a crushing injury to the chest, which was held by antero-

posterior compression between an electric car and a door-post for fully three minutes; on the removal of the car he fell unconscious. Admitted to the hospital an hour later, he was still unconscious; pulse 100, weak but regular; respirations 30, shallow. Several ribs were fractured and there was an area of subcutaneous emphysema. A striking feature was the condition of the skin, which, from the third ribs upward over the neck and face, presented a dusky, bluish, mottled appearance. Cyanosis was suspected, but was not the cause, inasmuch as the color was not general over the body, as it did not disappear on pressing the skin, and as it persisted after the patient's general condition improved. Eight days after the accident the blue color began to fade. On his admission to the hospital the patient was in a condition of extreme shock and was stimulated by nitroglycerin, atropine and strychnine, with ice-cap to the head and warmth to the body. Ollivier's theory is that the skin appearance seen in these cases is due to stasis of carbonized blood in dilated and temporarily paralyzed capillaries. History of compression of the chest, evidence of such compression (broken ribs, contusions, etc.), with absence of respiration, unconsciousness and apparent death, with the localized coloration already described, are important for diagnosis. If the patient is seen directly after the injury artificial respiration must be begun at once; the secondary or late treatment is to combat shock in the manner described above.

The Pathogenesis of Complications of Vincent's Angina.—A variety of morbid conditions secondary to ulcero-membranous lesions of the mouth, due to the bacillus of Vincent, have been studied by Simonin (Gaz. hebd. de Méd. et de Chir., Dec. 19, 1901). These conditions may be cutaneous (polymorphous eruptions, purpura hemorrhagica) or may involve serous membranes (arthralgia, pleurisy) or may affect the great vital organs (bronchopneumonia, nephritis, myocarditis). These various complications appear to be due to the common pyogenic bacteria, principally the streptococcus. The associated bacteria of Vincent (fusiform and spirillum) merely produce the local ulcer which furnishes the port of entry to secondary infection; inoculation of animals with this group proves its inability to generalize itself in the body. The tongue and the mouth, presumably on account of their relatively poor lymphatic defense, are especially dangerous sites of ulceration from the standpoint of secondary infection; ulceration of the tonsils is less dangerous. The intensity of the secondary infection is often so great as to lead the clinician to neglect the primitive lesion. It is essential to promote cicatrization of the primary ulcer; for this purpose iodine, peroxide of hydrogen, methylene blue and silver nitrate are recommended.

Method for Determining Pyloric Insufficiency.—It is well known that the usual methods for determining insufficiency of the pyloric end of the stomach are either impractical or inefficient. C. B. Queirolo (Klin.-therap. Woch., Dec. 8, 1901) recommends that a double sound be introduced into the stomach, one end of which has connected with it a small balloon, while the other permits it to fill with air and also records upon a drum any changes in the pressure within the bladder. If, on introducing the balloon and moderately distending it with air, when in the stomach, light percussion be performed over the gastric area, moderate excursions will be recorded upon the drum. If, however, the normal tone of the pylorus is absent, the endogastric pressure will not be increased, since the distention of the balloon will at once be followed by an escape of the gas normally present into the duodenum, so that even strong percussion will give a straight line instead of a number of curves upon the registering instrument.

Symptomatology and Therapy of Chronic Emphysema.—Cases of acute emphysema with sudden increase in the rapidity of the heart's action have been described by Tuczek and others as a neurosis of the vagus. The condition is apparently one of stimulation of certain fibers of the vagus occurring simultaneously with paralysis of other fibers of the same nerve. Attention is now directed by G. Zuelzer (Berl. klin. Woch., Dec. 23, 1901) to a series of cases in which emphysema was associated with slowing of the pulse; in the interpretation of these cases the writer assumes that the pulmonary and cardiac fibers of the vagus are here both in a condition of irritation. The patients were nearly all male adults, whose ages ranged from eighteen to forty-five years. They complained of a sense of oppression in the chest. Shortness of breath followed physical exertion so much that it interfered with occupations demanding such exertion. Cough and expectoration were absent. Cardiac auscultation was negative; percussion showed a concealment of the normal area of cardiac dulness, due to the extension of pulmonary resonance. The frequency of the pulse in the several cases was from 42 to 64 a minute. Partly because of the results of experiments on animals, and partly because in the cases clinically observed pressure over the vagus at the border of the sternocleidomastoid caused exquisite pain, the author regards these cases as primarily instances of vagus neurosis. This theory is supported by results of the administration of atropine. Zuelzer states that after giving 1 milligram of atropine subcutaneously he noticed within from 10 to 15 minutes a retraction of the lower border of the lung and a marked increase in pulse frequency. The sense of oppression in the chest disappeared at once, and after atropine had been given by mouth once a day for eight or ten days the sensitiveness to pressure over the pneumogastric also vanished.

Paratyphus.—Now that the Gruber-Widal reaction in typhoid fever has come to be a generally tested and accepted symptom of the disease, the significance of a certain small residue of cases in which the reaction fails to occur has aroused a great deal of curiosity. The literature bearing upon this subject has been ably summarized in a recent article entitled "Paratyphus" by Meltzer (N. Y. Med. Monatschrft., Dec., 1901). Within the past two years more than a dozen cases have been described in which the clinical diagnosis of typhoid fever was not confirmed by the agglutination test with the Eberth bacillus, but in which the sera reacted promptly to certain other bacteria which could be isolated from the blood or from the excrements. The first case was described by Gwyn of Johns Hopkins in 1898; then followed six from a single epidemic in Hamburg in the same year, and eight from the epidemic of 1901 in Bremen. In all there were headache, prostration, continuous fever, slow pulse, enlarged spleen, roseola, and the diazo-reaction, epistaxis, intestinal hemorrhage, delirium, slight pulmonary affections, and post-typhoidal osteomyelitis occasionally occurred. In short, the cases were clinically typical typhoids. All but three of the cases ran a course somewhat milder than the ordinary typhoid. As none of them were fatal, there is no pathological anatomy. The Widal reaction was absent in all of them. In the case of Gwyn and in the eight cases of Schottmueller in Hamburg bacteria which were agglutinated by the sera of the patients even in high dilution were isolated from the blood. In Kurth's cases from Bremen the bacteria were found in the stools, and were likewise agglutinated. It is extremely important that both in the Hamburg and in

the Bremen epidemic, every case of "typhoid" which failed to give a positive Widal reaction yielded a specific organism which reacted to the serum test with the blood of the individual in question. All the micro-organisms thus isolated are very similar in character, and belong to the so-called colon-typhus group. They are more or less motile, have flagella, and do not liquefy gelatin; from the colon bacillus they are distinguished by the fact that they do not coagulate milk, do not ferment lactose, and do not form indol; from the typhoid bacillus, they differ in producing gases, in fermenting glucose, and in alkalinizing the media. Other pathogenic bacteria of the same group are the bacillus of hog-pest and of epidemic dysentery. Meltzer believes that the results above summarized are universally applicable. He holds that only such cases as give a positive Widal reaction are to be considered as typhoid fever. All the other cases clinically resembling typhoid that fail to give the reaction are caused not by the bacillus of Eberth, but by certain other forms which belong to the same general group. These cases constitute from .5 to 5 per cent. of the cases of "typhoid," according to the varying statistics of different pathologists. They compose a group which he would designate as paratyphus.

Gastric Neurasthenia.—If there is any branch of medicine in which the physician may entertain original notions upon symptomatology and treatment, without the fear of conflicting with an established and definite code, it is the field of functional diseases. Of this privilege DR. HERSCHELL (Edin. Med. Jour., Jan., 1902) has liberally availed himself. He accepts the broad general subdivision into neuroses of sensation, of motility, and of secretion. He is convinced, however, that the importance of the secretory neuroses has been enormously overestimated. With the exception of occasional and unimportant departures, he has found that the composition of the gastric juice is practically normal in all cases of nervous dyspepsia. The neuroses of motility, on the other hand, are of the first importance, and of these the myasthenic forms are the most frequently met with. There are three stages of muscular inactivity of the stomach. In the first, clapotement is obtainable, but the persistaltic activity is sufficient to empty the stomach before the next meal. In the second, the stomach cannot empty itself before the next meal, but does so during the night. In the third, or stage of atonic dilatation, the stomach does not empty itself during the night, and thus always contains food residues. The most important of the sensory neuroses is hyperesthesia, which gives rise to pain and tenderness. The symptomatology of the gastric neuroses corresponds to the above conception of their nature. Succussion, gastroptosis, the presence or absence of food residues after varying intervals of time, are the chief indications of disease. Painful spots may be present. No diagnostic information is to be obtained by the chemical examination of the gastric juices. The special treatment must first obviate any sources of irritation of the gastro-intestinal tract. All dental defects are to be remedied, and chronic fecal retention is to be combated by colon irrigations. The dietary indication is primarily to offset the myasthenia. This is done by ordering small and frequent meals, say five or six during the waking day. The nature of the food is determined by the percentage of hydrochloric acid in the secretions. If there is hyperchlorhydria, he gives foods which, while having a high combining value with the acid, tend to stimulate the secretion of it in the least degree, namely, sweetbreads, brains, oysters, egg-albumin, plasmon, milk. In combating constipation, it is to be kept in mind that this is generally of the spastic type so that the usual stimulants are contra-indicated; Fleiner's injections of warm olive oil at bed-time are recommended. As regards drug treatment, the author believes that the only medication is nitrate of silver in doses of ¼ grain, in palatinoid form, three times a day, or quinine bisulphate in doses of ¼ grain. Upon the physical means of restoring tone to the system the author lays very great stress. Static electricity is to be used in cases in which a general sedative tonic is indicated. In cases in which stimulation is needed, the "sinusoidal bath" is highly lauded and thoroughly explained. Finally, the author makes frequent use of Einhorn's intragastric spray apparatus in cases demanding local treatment of the stomach, upon the theory that it enables one to apply a very small amount of a concentrated solution over a large area of stomach; in other words, to get the direct without the poisonous effects of the drug.

Cocaine Habit.—The effects of cocaine alone are so intense and exhilarating that the person addicted to the habit soon takes whisky or morphine to counteract the effects which would otherwise probably end in acute mania. E. H. MARTIN (Med. Times, Jan., 1902) says that the cases of cocaine and morphine habit are generally among white people, while the combined use of cocaine and whisky appears more frequently among the blacks. The latter two drugs seem to smother all moral sensibilities. Insomnia and anorexia are prominent symptoms and lead to more whisky. The action on the genitals is peculiar. Whether the drug is excreted in the urine, causing anesthesia of the urethra and glans, or whether the sexual centers in the brain are affected is not known, but cocaine always causes the penis to become shrunken and bloodless. Where morphine also is taken the desire is destroyed, but cocaine and whisky markedly stimulate the sexual appetite, erection being, however, impossible, and sexual perversion frequently results. In regard to treatment, the cocaine habit is similar to the whisky habit and can be stopped if the patient has any will power left. A few days' bracing with strychnine is all that is usually necessary, but it sometimes happens that there is great difficulty in giving the victim enough will power. The great increase in the use of coca and coca-cola will undoubtedly lead to there being as many users of these drinks as there are now of coffee, and the effect which the continued use of small doses of cocaine has will probably be more fully understood.

NEUROLOGY AND PSYCHIATRY.

The Bladder in Syringomyelia.—The great variety and confusing diversity in the symptoms of this nervous disease make it a matter of great importance to settle such points as its relation to the bladder. J. ALBARRAN and G. GUILLAIN (La Sem Méd., Dec. 4, 1901) have observed in cases of syringomyelia severe bladder troubles, with pain, blood in the urine and retention. Such have caused them to examine more minutely patients of this class for latent and obscure bladder troubles, when no particular subjective symptoms directed attention to that organ. The first series of persons examined was four. Three of them had latent retention, respectively of fifty, eighty and one hundred and twenty-five grams of urine. The fourth had no retention. In another series of six patients, three had latent retention, one had cystitis with multiple ulcerations of the bladder, incomplete retention and a secondary formation of irregularities in the mucous membrane, and another had total retention with widespread, discrete ulcers. Only one of the patients had a normal bladder. It is therefore apparent that contrary to the classical opinion, symptoms proceeding from the bladder are common in syringomyelia. In some subjects these

troubles are latent, with full or incomplete retention of aseptic urine; but this very state creates a soil favorable for the development of infections of the bladder. Therefore such symptoms break out suddenly as soon as these infections have reached a certain degree or as soon as retention itself causes them mechanically. Morover, they have found lesions of the bladder which present a number of peculiarities far removed from the lesions of ordinary cystitis and similar to those found in chronic retention of the urine. The multiple small ulcers and the large extensive discrete ulcers of the mucous membrane and the perforations of the bladder are the final degrees of those lesions, which should be regarded as taking their origin in trophic changes due to nerve damage and springing from trouble in the spinal cord due to the syringomyelia. The trophic alterations in this disease are very frequent and really determine the classic symptoms of it. Therefore, it is not surprising that they should in certain cases affect the bladder also. In syringomyelia the ordinary difficulty of retention of urine, either aseptic or infected, develops really on a special trophic soil, which in itself should be made part of the pathogenic elements in all the lesions which one observes. Changes in the contractility of the bladder-wall have been proven. Death may follow ulcers of the mucous membrane of the bladder. The final conclusion is that one should examine in a systematic manner the bladder of all patients suffering from this disease, and as soon as any urinary troubles appear should give them careful and persistent treatment in order to obviate the later and fatal stages.

Diphtheritic Paralysis.—The causes of paralysis in diphtheria have been made the subject of a fairly thorough pathological investigation by Foulerton and Thomson (Edin. Med. Jour., Jan., 1902). They studied the nervous system in nine guinea-pigs which had been injected with filtered diphtheria broth in varying quantities, and also in a number of children who died of the disease. They come to the conclusion that the paralyses may be either central or peripheral in origin. In the former case, the anterior horn cell first becomes the seat of degenerative changes, as evidenced by abnormal staining reactions, while the nerve-fiber is still normal in appearance. A secondary descending atrophy of the nerve, however, follows upon the disease of the central cell. In the latter, or peripheral type, of which the common palate paralysis is an example, the muscles paralyzed are those in connection with peripheral nerve fibers which come into close relation with the seat of toxin-formation in the throat and nasopharynx. The central paralyses are toxemic in origin; the peripheral are due to local and direct irritation. The latter have, of course, the better prognosis.

Aphasia During Convalescence after Evacuation of Brain Abscess.—Since the publication of Macewen's work the subject of otitic brain abscess has received less attention from the neurological than from the otological point of view. Such evidence as is afforded by the reports of the cases of Muller, Kühn, Koe, Burnett, Steinburger and Moss points toward impaired function of the auditory word center as a cause of the resulting aphasia. G. L. Walton (Boston Med. & Surg. Jour., Dec. 26, 1901) made a study of Dr. Jack's patient with a view to determining the variety of aphasia present. The details of this examination bear marked resemblance to those in the case of Marie and Sainton, in which autopsy confirmed the localization in the temporal region. The details of the examination conducted by Walton cannot be reproduced here, but it may be said that the case corroborates the views of Broca and Trousseau, who first maintained that there is no writing center in the sense of a center in which are stored up the kinesthetic memories of written words and capable of stimulation independently of Broca's convolution. The inability to write in this case was absolutely coincident with the inability to talk. When the auditory center either failed to recall the memory of the sound of the word, or, if remembered, failed to convey the stimulus properly to the kinesthetic speech center, it failed also to communicate it to the center for the movements of the hand. That the centers and fibers affected were not destroyed is shown by the complete recovery.

Angioneurotic Edema.—This condition, known also as Quincke's disease, is a neurosis of the vasodilators characterized by tumefaction in different parts of the body, affecting the skin and subcutaneous tissues, rarely the mucous membranes, says P. C. Madinos (Gazz. degli Osped., No. 149, Dec. 15, 1901). Little is known of its pathogenesis; all observers of the phenomenon have agreed that the nervous system is concerned in it, Richel holding that it is of central origin, Quincke that it is due to the peripheral nerves. Heredity seems to have some influence, Osler noting its appearance in five successive generations. The author has found a certain connection between the affection and a tuberculous family history. Four cases are cited; the most typical one is given in detail: Young woman, about twenty-five years of age; edema appeared in some part of body two or three days before the menstrual period, spreading from original point, or subsiding there, to appear in other parts successively; feeling of tension in the skin and slight pain on pressure; swelling rather well defined, pale red, pitting when pressed with finger; local temperature elevated. This condition continued for about ten days, then subsided, to reappear upon the approach of the next menstrual period. Treatment with bromides, valerian, and ergotin having failed, recourse was had to faradic electricity, treatment being administered daily for from ten to fifteen minutes. The positive pole was applied to the side of the neck in the course of the sympathetic, the negative to the affected part. After thirty days there was marked improvement and two months' treatment effected a complete cure.

Specific and Non-Specific Lesions of the Brain.—The lesions of the brain that may result directly or indirectly from syphilis can be divided into three classes: (1) those that are caused by the syphilitic poison and by nothing else; (2) those that may have a specific or a non-specific origin; (3) the non-specific lesions that occur as indirect results of the syphilitic virus. J. T. Eskridge (Jour. Amer. Med. Assoc., Jan. 4, 1902) calls attention to the importance of distinguishing between the specific and non-specific lesions, as only the former are especially amenable to antisyphilitic treatment, while the numerous injuries caused by the presence of syphilitic lesions or the degenerations resulting from toxemic or other blood states which may result from syphilis, are in no way specific in character and do not yield to this form of treatment. While gummata are the specific lesions, these by their presence in lessening intracranial space, by their irritating effects, by encroaching on and injuring adjacent structures, produce intracranial lesions that are in no way specific in character.

Cause of Narcolepsy.—Pathological somnolence has usually come under the observation of a neurologist, but, as the prime inducer of this diseased condition probably does not arise within the brain, the general physician should be more interested, and an endeavor made to determine the true etiological factors. H. Stern (Med. Rec., Jan. 11, 1902) describes a case which has been under his care for some time. A car con-

ductor, aged thirty-five, of good habits and no important family history, had for months been seized each day with an almost irresistible desire to sleep, the attack coming on regularly about ten o'clock in the morning and lasting till three in the afternoon. There was free perspiration at all times and especially just before the attack. Physical and clinical examinations carefully made several times were negative except for a somewhat dilated stomach and hyperchlorhydria, high urinary density and acidity, with urinary chlorides greatly in excess. There were a diminished blood alkalescence and a low urinary toxicity both before and after the attack. Variations in diet and medication had no effect on the condition. Analyses showed that the patient egested in twenty-four hours about as much chlorides in his urine as he had ingested in the milk which formed his entire diet. Since he has hyperchlohydria and perspires very freely, especially just before the attack, it follows that for certain periods of the day the output of chlorides must exceed the supply and there exists a deficiency in the blood. Since vital processes are largely dependent upon the osmotic tension of the blood and since chlorides appear to play the most important rôle in the osmotic tension of the body fluids the depression of the nerve centers in the case reported seems to be due to the diminution of chlorides in the blood.

HYGIENE.

The Destruction of Rats by Bacterial Agencies.—The significance of these rodents as a factor in spreading the bubonic plague has led to several methods directed toward their extermination. A specific pathogenic bacillus has been described by DANYSZ, and used by him with favorable practical effect. Another series of trials has been made and new statistics collected by R. ABEL (Deut. med. Woch., Dec. 12, 1901). In his laboratory experiments the rats were fed with the pure culture and died in from six to twelve days. The livers and spleens of these animals were again fed to others; the latter promptly succumbed. This method was continued through six generations. Experiments tried outside of the laboratory varied as to the apparent results. In all cases but few dead bodies were found, this being probably due to the well-known natural aversion to dangerous localities which these rodents possess. Certain much frequented resorts were entirely deserted for several years. Experiments on ships were very unfavorable. It seemed necessary in all instances to introduce large amounts of the culture. The chief indication in future investigations will be to devise some more practical and effective method of administration.

Hydrocyanic-Acid Gas as a Disinfecting Agent.—Several experiments have recently been made by J. S. FULTON and W. R. STOKES (Maryland Med. Jour., Dec., 1901) in the endeavor to show the efficacy of hydrocyanic-acid gas as a germicide; but since the cost of room-disinfection with this gas is about four times that of formaldehyde disinfection, since the gas is more dangerous than formaldehyde, and since the only advantage in the use of hydrocyanic acid is lessened risk of fire, these observations may be considered as being more interesting than valuable. In the treatment of various parasitic diseases of plants this gas has been successfully used by inexpert persons since 1897. A convenient apparatus was arranged by which the gas was not liberated for a few seconds after being started, thus allowing one time to leave and close the room. Various kinds of insects, rats, mice and guinea-pigs were experimented upon and all died within a few minutes. Formaldehyde has been proven to be ineffectual in killing vermin of ships and mosquitoes conveying yellow fever. Sulphur dioxide is here more efficacious and it is for this purpose that hydrocyanic-acid gas may be found most useful. With ordinary care there is slight danger to human life, as the gas can easily be detected and avoided. It has no effect upon foodstuffs and in no way injures furniture, paintings or merchandise.

Bacterioscopical Versus Chemical Examination of Water.—With the effluvium of filth which follows the oil-like spread of mankind over the earth's surface, there arises with rapidly-increasing import the question to drink, or not to drink, of a given crystal water. The chemists have been having their own way in deciding this point, perhaps because there were, until now, easier and more fruitful fields for the bacteriologist to pasture in, but, if the conclusions of A. C. HOUSTON (Brit. Med. Jour., Dec. 21, 1901) are consulted, it appears that the retort and the flame will soon have to give way to the culture and the incubator. It will be seen that the very essence of this able paper is this: The author shows that the pregnant question to be answered is *not* whether certain pathogenic forms are present, but what is their relative abundance? In conclusion, he makes the following statements: (1) From the public health point of view it is the adventitious and perhaps dangerous bacteria, rather than those peculiar to water, which demand attention. (2) As sewage is the most common and dangerous source of the pollution of potable water, further knowledge of the bacteria characteristic of sewage is required. (3) Bacteriologists have hitherto almost entirely neglected the question of the relative abundance of micro-organisms of different sorts in pure and impure substances; for example, water as compared with sewage, virgin soils with polluted and cultivated soils, etc. (4) Attention to this question of relative abundance has a most important bearing on the bacterioscopical analysis of potable waters from a public health point of view, because it shows that a biological distinction between pure and impure substances (for example, water and sewage) is so great as to be almost inconceivable, so great as to render the adoption of rigid and stringent bacteriological standards unnecessary and inadvisable, and so great, also, as to allow the bacteriologist to detect in a water the presence of objectionable polluting material so small as to be far beyond the reach of chemical analysis. (5) Streptococci are absent from 10 c.cm. (or more), bacilli coli from 1, 10, it may be 100 c.cm. (or more) and bacilli enteritidis sporogenes from 100 to 500 c.cm. (or more) of pure waters; that is, these microbes are altogether absent, or relatively so, from pure waters. (6) These three germs are commonly present in $^1/_{1000}$ c.cm. $^1/_{100000}$ c.cm. and in $^1/_{100}$ to $^1/_{1000}$ c.cm. respectively of crude sewage, that is, these microbes are present in crude sewage in great abundance. (7) It is evident from these figures that there are tests in the bacterioscopical examination of water which far surpass in delicacy any known to the chemist. (8) A stage may be reached in the pollution of water with sewage when the contaminating material is so small in relation to the bulk of water as to be inappreciable by chemical means, yet yielding to bacteriological tests unequivocal evidence of gross pollution with germs of intestinal origin. (9) The presence of streptococci is to be thought of as indicating extremely recent, and bacilli coli less recent though still not remote pollution of animal sort, but the presence of bacilli enteritidis sporogenes cannot be considered to afford evidence of pollution bearing a necessary relation to the recent evacuation of animals. (10) Organic matter *per se* is, so far as is known,

harmless; it is the bacteria apt to be associated with the organic matter that constitute the element of danger. (11) It is not necessary to demonstrate in a polluted water supply the presence of definitely pathogenic microbes to prove that there is danger in drinking such water. (12) It is sufficient to show that microbes of intestinal origin are present in a water to condemn it. (13) Valuable as the chemical analysis of a water undoubtedly is, it should in the future occupy a secondary position, and the bacteriological examination should take its place in judging our water supplies.

THERAPEUTIC HINTS.

Resorcin Poisoning.—A case of this kind in an infant five days old is reported by A. CAILLÉ (Pediatrics, Dec. 15, 1901). Resorcin, gm. 0.015 (gr. ¼) every four hours, was ordered, and after the sixth dose the child became cyanotic, pulseless, cold and clammy, and the urine voided before collapse set in had a smoky color. The child was given a hot bath (110° F.) every two hours and kept warm by hot-water packs; the bowels were flushed with a very warm saline solution every three hours, and warm sweetened tea was given by spoon frequently. As soon as the child was out of collapse it was put to the breast, and in a few days its recovery was complete.

Scarlatinal Nephritis.—The patient should be kept in bed on fluid diet, wearing flannel next to the skin. The flow of urine may be increased by plain or carbonated water with bitartrate of potassium or other saline. Prolonged sweating, brisk purging, etc., should not be practised together, but alternately. If oliguria is pronounced or uremia threatening, normal salt solution at 105° to 110° F. may be injected by rectum. This dilutes the toxins and favors their elimination, and lessens the vasomotor constriction. Digitalis ought not to be employed. Calomel, gm. 0.003-0.006 (gr. 1/20-1/10), given every hour, is diuretic, laxative, sedative to the stomach, and reduces arterial tension. Strychnine, dry-cupping for dyspnea, and, if convulsions occur, chloral, hot-packs, and salt water irrigations may be employed. In coma, sodium caffeine benzoate, subcutaneously, braces up the heart, rouses from stupor and starts diuresis. Renal hemorrhages are best treated by hot applications over the loins, mustard plasters and absolute rest. Suprarenal may be tried. Only small quantities of liquid food at frequent intervals should be taken, such as broths, clear soups, equal parts of milk and oatmeal water, etc. In general alcohol is contra-indicated, but cold champagne, c.c. 4.0 (℥i), with ice, every ten to thirty minutes, may be given for frequent vomiting and dry tongue. When edema is marked, dyspnea excessive or pulmonary edema impending, hot packs or hot-air baths may be used. The danger of nephritis is greatest during desquamation. During convalescence, the patient must be kept in bed, or in the house, avoiding exposure or too great muscular activity. The anemia requires iron.—F. HUBER in Pediatrics, Dec. 15, 1901.

Follicular Conjunctivitis.—Mild cases may be cured by rubbing the everted lids with copper sulphate or alum and washing the excess off with sterile water. This may be done two or three times a week, in the interval a solution of zinc sulphate, 0.2-0.4 per cent. (gr. i-ij to ℥i) being instilled three times a day. But operative procedure is more rapid and very effective. With the usual aseptic precautions, and having applied cocaine, pass one blade of Knapp's roller forceps, or Gifford's forceps, well back into the conjunctival cul-de-sac, and the other over the everted conjunctiva, and with firm pressure pull from the eye. This breaks down and squeezes out the follicles. In the retrotarsal fold and near the canthi are points which cannot be reached by the Knapp forceps, and the Gifford instrument is better. After this procedure, mop the lids with bichloride, 1:500, washing off the excess with boric-acid solution or sterile water. Repeat every one or two days, using the zinc sulphate solution from one to three times a day.—J. W. BULLARD in Western Medical Review.

Pneumonia in Children.—If there is much pain at the onset it may be relieved by mustard paste, but later in the disease G. GROTHAN (Western Med. Review, Oct. 15, 1901) prefers to apply to the chest once or twice a day, a flannel saturated with equal parts of lard and turpentine. Over this should be placed a cotton-jacket covered with oiled silk. Flaxseed poultices should not be used. During the early part of the disease but a small quantity of food, if any, should be given, and throughout the disease little food and more water are desirable. The main indication for treatment in ordinary cases is to clean out the bowels and maintain excretions. Hyperpyrexia is treated by cold to the head and cold sponging. The author condemns coal-tar products as a "class" of pernicious drugs. In a severe case calomel may be given, with an intestinal antiseptic such as guaiacol carbonate; later, salicylate of sodium every two hours and the aromatic fluid extract of cascara. The bowels should move at least every twelve hours and if sluggish may be stimulated by normal salt enemata. The kidneys may be kept working by liquor ammonii acetatis, slightly alkaline, made fresh daily and administered every two hours. Strychnine sulphate, gm. 0.0002 (gr. 1/300), every three or four hours for a one-year-old child, should be given throughout. Sudden general collapse may be combated by strychnine and nitroglycerin hypodermically. The hot mustard bath, begun at 100° F. and raised to 110° F., may be used for ten minutes for cardiac or respiratory failure with cyanosis, cold surface, rapid pulse and respiration and extreme nervousness. Cold, or bromide and chloral, will combat nervous irritability and sleeplessness. Codeine sulphate may be given guardedly for pain and cough.

Psoriasis.—In certain cases of this affection, M. BALZAR (Revue de Thérapeutique, Nov. 15, 1901) advises a warm bath every day or every two days, in which is placed

℞ Oil of cade..... 45.0 (℥iss)
Fluid extract of quillaya, c.c. 20.0 (℥v)
Yolk of one egg.
Water to make.....c.c. 240.0 (℥viij)

Make emulsion and mix with a pail of water and then add to the bath.

Recurring Gonorrhea.—The internal administration of drugs is of little or no use, urethral irrigation having the greatest value. A quart of warm solution is flushed through the urethra once daily, the formula being:

℞ Zinci sulph.
Alum, aa..... 0.06 (gr. i)
Acidi carbol..... 0.03 (gr. ss)
Aquæ, q.s. ad.....c.c. 1000.0 (Oij)

Twice daily give an ordinary urethral injection of protargol, gm. 0.25 (gr. iv), in water, c.c. 30.0 (℥i). This treatment is to be continued for from six weeks to two months.—GERALD DALTON in British Medical Journal.

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A WIDER VIEW OF MULTIPLE NEURITIS.

MULTIPLE NEURITIS was once considered a comparatively rare affection, but at the present time its widespread occurrence is attracting considerable attention and more careful study is being devoted to its manifold etiology

The careful presentation of the causation of this affection in this week's issue of the MEDICAL NEWS, coming from so well-known an authority as Dr. M. Allen Starr, serves to bring into prominence certain etiological factors which have been obscure and others which have been neglected. The discussion also opens up an important field of medicolegal interest bearing on the relation of certain noxious trades and diseases of the nervous system.

The recent outbreak of arsenical neuritis in England, already referred to editorially in the MEDICAL NEWS, has served to focus the attention of neuropathologists on the rôle played by the metallic poisons in the production of peripheral nerve lesions. In Dr. Starr's paper it will be seen that the growth of many new industries in the United States in which arsenic, copper and lead are widely employed, is attended with a proportionate increase of danger to the working community, and physicians and legislators will do well to carefully scrutinize the factory inspection reports of European countries in order to avoid many of the pitfalls therein laid bare. Many of these industries are only in their infancy in this country, and a careful study of the cases of neuritis coming to us for diagnosis and treatment is imperative.

Alcohol as a causative factor in multiple neuritis has been recognized for many years, but it is of service to reflect that many "patent medicines," "tonics," "restorers," "blood purifiers," etc., are disguised alcoholic mixtures.

With the enormous output of rubber goods, bicycle, and automobile tires and innumerable electrical devices, the importance of poisoning by carbon disulphide is to be considered, and much more so the effects of the numerous synthetic coal-tar products, since every houshold now has its own box of headache, neuralgia and painful menstruation tablets, purchased from the druggist on his, not the physician's, responsibility.

It is particularly interesting to note that, from the neurologist's standpoint, confirmatory evidence of the value of antitoxin in diphtheria is found in a marked diminution of the cases of neuritis due to this disease. Attention is also called to the fact that our foreign possessions are going to bring a wider acquaintance with forms of multiple neuritis due to beriberi and the severer types of malaria.

Dr. Starr has thrown some light on a large group of cases heretofore regarded as idiopathic. These are really due, he says, to infections, many of them probably influenza-like, others perhaps gastro-enteric, still others due to the toxins elaborated in the rheumatic or gouty dyscrasiæ,

That Nature yields her secrets only after the most continued study is made apparent by this important résumé, and there still remain some cases which must, for the time, be regarded as idiopathic.

THE STATE CHARITIES BILL AGAIN.

THE intense excitement caused by Governor Odell's State Charities Bill shows that the people of the State, as well as those more intimately concerned with the management of the State Hospitals, realize that its success would be a degradation to the honor of our commonwealth.

The system by which the New York State Hospitals for the Insane have been looked after and improved by the voluntary service of the distinguished men of the community has been pointed out as an example to other States and other nations. The slow up-building of the system, its utter independence of political schemes,

the paternal philanthropic way in which the able men on the Boards of Managers have for terms of seven years visited, inspected, and personally cared for these homes of the afflicted, and all without thought of payment, approaches very nearly the ideal. The burden to the State has been voluntarily lightened by this system. It cannot be reduced by appointing a corps of one-year-service, powerless-to-act visitors whose services at $10.00 a day are limited to ten visits in their year of office. Hitherto, though the appropriation has been large, the people have had the satisfaction of knowing that every cent has been used for the care of the insane and not a penny has gone to support a political machine.

Why does Governor Odell wish to abolish the managers? Why does he want to pull down this honest system of which the State is so proud? Why does he want to drag the beneficent charities of the State into the machine? For economy's sake? Fudge! He knows there is no economy in his bill; but there is Power, Political Power! The Local Boards care personally for the petty needs of the insane, providing them with pleasures, comforts, entertainment, conferring with their relatives, and seeing that the helpless and unfortunates get the food and shelter and care that the State generously gives; but these worthy managers, it is true, are not of as much use to the machine as a centralized, closely-organized corps of indifferent paid visitors. And yet we do not impute to our present excellent Governor the desire to organize the machine more closely, for personal power. But we do most emphatically point out to him the danger to which he exposes the State Charities Commission from the influence of an unscrupulous governor.

Also we urge the fact that the bill will not save money; it will not provide efficient service; it will not ensure honest and wise care of the insane.

Moreover, we frankly caution our friends in the legislature that the little amendments and alterations and patches which the Governor may consent to stick on the bill to satisfy this or that objection have nothing to do with the case. The one point is that the Local Boards of Managers *must not be abolished.*

The very fact that the Lunacy Commission is composed of the most distinguished and honorable men is in itself a menace, if their honor is to be used as an argument to cloak the real issue; for it is only to such honorable men that the public would dream of confiding this power. They will not continue to serve, after the system has degenerated into that state of scandalous mismanagement from which Bellevue has just emerged.

After New York City has had the experience she has suffered under the centralized system of control of commissioners, and after she has finally adopted the trustee system, why should New York State go back and pick up the worn and worthless garment she has shed and wear it under pretense of economy?

OSTEOMYELITIS AND ITS DANGERS.

No better proof of the value of the doctrine of the infectious origin of most acute disease could well be adduced than the present position of our knowledge as to the etiology of osteomyelitis. A mystery to the acute observers of the preceding generation has become one of the triumphs of knowledge in ours. Now there is no difficulty in recognizing osteomyelitis as by no mere analogy, but in reality a furuncle of bone. The micro-organisms that in the hair follicles of the skin give rise to boils are exactly the same as those that within the shaft of a bone cause a purulent focus. Just as with regard to the cutaneous furuncle, the severity of the symptoms are dependent on the virulence of the causative micro-organisms and the resistive vitality of the patients at the moment. So, too, with regard to osteomyelitis. In but one point, but that most important, do the two pathological processes differ; the furuncle, owing to its proximity to the surface, has a marked tendency to spontaneous cure by evacuation, but the osteomyelitic process is unable to find or make an exit, and therefore demands prompt surgical intervention.

The recent discussion on osteomyelitis before the Medical Society of New York County brought out very well the present state of our knowledge with regard to this ailment. It will be found in abstract in our report of the very interesting orthopedic evening of the society in last week's issue of the Medical News.

The two forms in which osteomyelitis occurs are of great importance to the general practitioner. Spread of the suppurative process within the bone may in acute cases soon lead to death and sequestration of the larger part of a long bone, or to still more serious results if general sepsis, or even to sudden death if septic emboli result. Very early recognition, then, is of the greatest importance. In this perhaps more than in any other affection the Röntgen rays are of great assistance for diagnosis. Very early in a

case the outlines of the pus cavity with its lighter interior can be seen. In fact this constitutes the only sure method of early diagnosis. In chronic cases the existence of a limited purulent area in the shaft of a bone gives rise to referred pains in a neighboring joint. These conditions often persist for years with exacerbations of symptoms at irregular intervals and are often diagnosed as recurrent rheumatism.

The seriousness that osteomyelitis may assume is all the more surprising when the slightness of the cause that may occasion it is borne in mind. Any small cutaneous suppurative process, a furuncle, a felon, a slight ulcer, may prove the source of the purulent infection of the bone marrow. This has been demonstrated over and over again by careful bacteriological investigations, for the corresponding pus micro-organisms in pure cultures have been found in the external pus focus as well as in the internal bone lesion. Sometimes the original suppurative process is so slight that it has failed to be noticed by the patient himself and requires very careful thorough inspection for its detection. Not infrequently the causative micro-organisms gain an entrance through some lesion of the mucous membranes.

The frequency of typhoid osteomyelitis is now generally acknowledged. At times the typhoid bacilli seem to have lain dormant in bone marrow for many years (from five to ten) until the immunity of the system to typhoid virus has more or less worn off and then some slight injury to the bone arouses them to serious pathological activity. The original port of entry for the typhoid bacilli was evidently the specific ulcers of the intestinal mucous membranes.

Mouth and throat ulcers are also not infrequent sources of osteomyelitis. Special attention has been called to the fact that many cases of osteomyelitis originate in mouth infection due to unclean dental instruments. Many dentists fail to appreciate the necessity for the most careful cleanliness with regard to instruments used in the mouths of successive patients. Obscure infectious processes that originate in this way often failed to be traced to their true cause. Some of the mild pyemias that masquerade as anomalous rheumatism, neuritis or myositis, are due to dental carelessness. Too much stress cannot be laid on the necessity for dental asepsis or at least faithful antisepsis.

Recent advances in our knowlege of osteomyelitis are of the most practical character and involve especially the prophylaxis of the disease, its early recognition so as to prevent local extension or generalization, and its prompt effective treatment. The occurrence of osteomyelitic processes in the spinal column is now generally acknowledged. This clears up the mystery of many anomalous cases of so-called Pott's disease that healed rapidly and without deformity. The recognition of chronic cases explains many mysteries of diagnosis. In a word, a chapter of surgery with many points of interest for the general practitioner has received a development that holds out an encouraging prospect for other cognate types of disease that are as yet in obscurity.

CHILDREN AND MATCHES.

A STATUTE is apparently needed in this and the other States of the country to assist in decreasing the many cases of manslaughter which arise from the locking-in of young children by their mothers when leaving the house for longer or shorter periods. The case is a peculiar one, but one certainly within the proper jurisdiction of an adequate government and that without any danger of incurring, what to the individualistic Anglo-Saxon is a reproach, the charge of paternalism. One sometimes hears, indeed, of late that the people of the land are "too free," and perhaps this is a case in point.

The mental condition at the bottom of this calamitous and constantly recurring error of allowing one's children to be burned to death, with small chance of succor, seems to be thoughtlessness or, probably less often, ignorance—thoughtlessness and ignorance of the psychologic nature of the child. These are two conditions which it is alike the duty and the privilege of the State through its laws and boards of health to improve, if it would abolish one of the minor horrors of our civilization.

Nothing surely is to young children more interesting and attractive than fire, with its bright and lively flames, while matches inevitably entice by their crackling and brilliancy and are to the child the only available fireworks between Fourths of July. But, even in the family ruled in part by thoughtlessness and ignorance, young children are not commonly given matches to play with nor allowed unwatched to manipulate hot stoves, much less to build fires in the wood-box. These things are so absurd in the well-conducted household that they sound almost humorous to the competent parent, but assuredly such things are of all-too-frequent occurrence when direst and cruelest, because unmerited, tragedy results.

These things, matches and fires, considering their inherent interest for children, are precisely therefore those which children, completely freed from espionage for however short a time, would naturally seek, and, especially in the frequent cases in which due instruction as to the danger has not been inculcated, they would then run riot freely with these everywhere present agencies of an awful death. Moreover, few of the laity realize how little in the way of even superficial burns, especially when accompanied by great emotional shock, suffices to cause the death of a child.

So much for the causes of this common and hapless accident. The effects are only too obvious to every one who reads the news day by day in the papers. While exact statistics are not at hand, it must be obvious that in the course of a single year scores of children in this land are burned to death or wretchedly maimed for life by this one sort of criminal neglect on the part of the mothers and nurses. A statute making adequate punishment possible in the event of accident from this cause would seem to be required, and probably the mere placing of it on the books would call attention as nothing else could to this monstrous but wretchedly frequent effect of maternal thoughtlessness.

ECHOES AND NEWS.

NEW YORK.

Allied Hospitals Board.—Mayor Low has announced the appointment of the Board of Trustees of the Bellevue and Allied Hospitals, which board was created by the amended charter. Under the law the jurisdiction over Bellevue, Harlem, Gouverneur, Fordham and the Emergency Hospitals is taken away from the Department of Public Charities and lodged in the new board. The following were named and took the oath of office: Howard Townsend, for a term of one year; Theodore E. Tack, for the term of two years; Marcus Stine, for the term of three years; James K. Paulding, for the term of four years; Samuel Sachs, for the term of five years; Myles Tierney, for the term of six years; Dr. John W. Brannan, for the term of seven years. Dr. John W. Brannan was elected president of the Board and James K. Paulding secretary.

Economy with Cleanliness. — Commissioner Woodbury of the Street Cleaning Department has announced that he has contracted with the Long Island Railroad for the disposition of the street sweepings without loss to the city. The city undertakes to deliver 2,000 sacks of street refuse every day at certain docks on the East River to the railroad company. It is the purpose of the company to use the sweepings for fertilizing purposes. Under the Tammany administration the sweepings were carried to sea and dumped at a cost of $95 the scowload of 300 cubic yards. The Commissioner hopes eventually to dispose of the entire bulk, amounting to some 26,000 sacks, upon terms like those already made with the Long Island Railroad Company. The value of the street sweepings for fertilizing purposes was not recognized formerly, but Dr. Woodbury believes that the step he has taken to turn the street garbage into money will ultimately bring a revenue to the city.

Swift Abattoir Opposed.—Health Commissioner Ernest J. Lederle has listened for the second time to arguments for and against granting to Swift & Co. a permit to erect an abattoir on First Avenue, from Forty-fourth to Forty-fifth Street. At the first hearing Mr. Swift himself was present to urge that the abattoir which the meat concern proposes to erect would, because of the improvements which have been made in various directions, mechanical and scientific, be absolutely odorless, and therefore not objectionable to persons who live near the spot. But the Health Commissioner's office last week was filled with men and women who live in the locality in which it is proposed to erect the abattoir who submitted strong protests against its erection. The Rev. Dr. David H. Greer said that from 15,000 to 20,000 children lived within the radius which would be affected, and which was at present affected by the stench from the already existing abattoirs. "Their only refuge to get a little fresh air is the street," he said. "It is manifestly unfair to pollute for them the best air they can get—the air of the street." There were many others who said that they lived in the locality in which the abattoirs were located because they could neither sell nor rent their property.

City's Vaccine and Antitoxin All Right.—A committee of the Medical Association of the County of New York, which was appointed some time ago to investigate the conditions under which diphtheria antitoxin and vaccine virus were manufactured by the Board of Health of this city, made a report at a meeting in the Academy of Medicine January 20th. Dr. Wm. H. Park, who has charge of the department devoted to the production of diphtheria antitoxin, conducted the Committee through the laboratories and to the stables where the horses and calves are kept. They found that the horses selected for antitoxin production are under nine years of age and perfectly healthy, and are kept in a special building on East Fifty-seventh Street. About two-thirds of the horses had been kept in the basement, and about one-third on the first floor. "In order to prevent criticism, however, all the horses are now kept upstairs." All horses are exercised one hour daily except on very stormy days. The diphtheria toxin used in the injection of horses is produced by a culture obtained by the Department of Health laboratory seven years ago. Before treatment the horses are systematically injected with tetanus antitoxin, so as to prevent the possibility of their contracting tetanus, and since adopting this plan five years ago no horse has developed tetanus. As to vaccine virus, the calves used, the precautions for cleanliness employed, the care given to the stable, and the handling of the virus, have been investigated in detail. In a letter to the Committee Dr. Park says that the change in removing all the horses to the first floor where they will be kept "from now on" was made at their suggestion. The Committee, which comprised Drs. Brill, J. F. Erdmann, F. P. Hammond, and J. J. Nutt, concluded its report by saying that it is "unanimously agreed that the character, professional qualifications, and standing of the men engaged in the supervision and control of the manufacture of these products of the laboratory of the Health Department, none other than skilled help carrying out the details, are more than sufficient guarantee as to the quality of the curative sera and vaccine virus. These men represent the highest professional and scientific skill to be found in

this city in these departments, as is well known to the entire profession. The methods which are used, and which you have had presented, are beyond criticism. In conclusion it is most worthy of remark that the Committee has been unable to find any recorded cases of tetanus in New York following the use of antitoxin or vaccine virus, and that it is their opinion that these products of the laboratory of the Department of Health are absolutely safe."

Against the Osteopathy Bill.—A delegation from the New York State Medical Association will appear before the Judiciary Committee of the State Legislature on Wednesday, January 29th, to oppose the Brackett Osteopathic Bill, which proposes to except those of this society now practising from the examination required for a medical license. This subject was discussed by the Medical Association Monday evening and Dr. E. Eliot Harris briefly explained the purpose of the bill and said that it would be opposed on the ground that the Osteopaths' handling of contagious diseases is a positive danger to the community at large; that Osteopathy, so-called, is an agent used in the treatment of disease and as such has no more right or reason to be separated from the general practice of medicine than electricity, mechanical exercise, bathing, nursing, massage, or any other valuable agent or method used in the treatment of disease, and is not entitled to a special examining board.

Asylum Bill Condemned.—In response to an emergency call, a meeting of those interested in charitable works was held last week in the assembly room of the United Charities building, to discuss the bill now before the Legislature providing for the abolition of the boards of managers of the State hospitals for the insane. A resolution condemning the proposed legislation as "unwise, inexpedient, and contrary to good public policy" was unanimously adopted. The sense of the meeting was that the proposed plan of vesting the authority hitherto held by the managers in the State Commission of Lunacy and its visiting committees would promote extravagance rather than economy, would eliminate the gratuitous services of competent and sympathetic men and women, and would lead to a dangerous centralization of power, and might expose the hospitals to the unfortunate influences of partisan politics. Ex-Mayor Abram S. Hewitt and Prof. George F. Canfield of the Columbia Law School addressed the meeting. Mr. Hewitt said in part: "The city of New York has rescued itself from the grip of the serpent, and the Governor of the State is attempting to wipe out the work of a century. The Governor, no doubt, means well, but his mind has been crystallized on the subject of cost. His error is to me incomprehensible. I hope the Legislature will pause before it relegates our insane asylums to the barbarism of 200 years ago." Letters from the Rev. A. P. Doyle, of the Paulist Fathers and Morris K. Jesup, approving the fight against the bill, were read.

Neurological Society Condemns the Asylum Bill—At a meeting of the Council of the New York Neurological Society, held Monday last, the Asylum Bill was condemned and resolutions offered to urge its defeat. The clause advocating the abolition of the local managers was deemed especially undesirable.

Cost of State Charities.—What will Governor Odell say to the recommendations of the State Board of Charities submitted to the Legislature concerning the appropriations needed for the coming year? It will be remembered that in his annual message Governor Odell suggested that several hundred thousand dollars could be saved in the administration and management of the fourteen State charitable institutions each year. The Board recommends for the coming year appropriations for maintenance amounting to $1,197,000, or $21,000 more than for 1901; and for extraordinary expenses recommends appropriations aggregating $574,100, or $24,751 less than for last year. The receipts of these institutions for the fiscal year ending September 30, 1901, including balance on hand at the beginning of the year ($91,506.71), amounted to $1,399,669. Their expenditures aggregated $1,333,361; $915,043 being for maintenance, $384,370 for improvements, while $33,946 was returned to the State Treasurer, pursuant to the provisions of law. The number of their beneficiaries was 7,756. There are ten schools and institutions under private management, but mainly supported by State appropriations, and subject to the State Board's visitation and inspection. The receipts of these institutions for the fiscal year ending September 30, 1901, were from cash on hand, $43,907; from public sources, $685,623; from private sources, $210,784; total receipts, $940,316. Their expenditures aggregated $883,483, and the total number of their beneficiaries was 3,306.

Plans for the State Consumptive Hospital.—A meeting of the Board of Trustees of the State hospital for the care of persons suffering from incipient tuberculosis was held at Albany Wednesday last, when plans for the hospital buildings, to be erected on the site at Baybrook, between Lake Placid and Saranac, in the Adirondack region were passed on and approved. The Board has been in existence two years, and thus far the only work accomplished is the selection of a site for the hospital. It is understood now that there will be no further delay and that the trustees expect that the hospital buildings will be erected and ready for occupancy by next fall.

New York State Medical Society.—The following provisional program is announced: Papers.—Goitre, Medical and Surgical Treatment, by Thomas P. Scully, Rome; Phosphaturia, by James Pedersen, New York; Human Asymmetry, by W. S. Ely, Rochester; Malignant Tumors of the Periphery, Their Pathology and Treatment, by Thomas H. Manley, New York; A Case of Sarcoma of the Tonsil, by Arthur G. Root, Albany; The Treatment of Pelvic Suppuration, by Charles P. Noble, Philadelphia, Pa.; Gonorrhea of the Prostate, by John Van der Poel, New York; The Use and Abuse of Atropine and Other Mydriatics in Determining the Refraction of the Eye, by Frank Van Fleet, New York; Fractures of the Nose, by John O. Roe, Rochester; The Constitutional State versus Catarrhal Deafness, by Sargent F. Snow, Syracuse; The Educational Management of the Neurasthenic, by Edward B. Angell, Rochester; Discoveries in Pathology, by Mary Dixon Jones, New York; A New Method of Bisecting the Uterus in Abdominal Hysterectomy, by C. H. Richardson, Albany; The Traumatisms of Pregnancy, by Denslow Lewis, Chicago, Ill.; The Clinical Relations of the Systolic Murmurs Heard at the Pulmonary Area, by Morris Manges, New York; An Epidemic of Typhoid Fever in the Backwoods of Maine, by E. G. Brush, Mt. Vernon; Some Uses of Liquid Air in Pathology, with Demonstrations, by Henry W. Cattell, Philadelphia, Pa.; On a Case of Strangulated Ovary and Tube, by A. T. Bristow, Brooklyn; Toxic Dosage in the Treatment of Some Nervous Diseases, by William C. Krauss, Buffalo; Brachial Neuralgias and Arm Pains, by Charles L. Dana, New York; The Pathology of the Tissue Changes Caused by the Roentgen Rays, by Carl Beck, New York; The Sideroscope, by Thomas R. Pooley, New York; Glioma of the Retina, by Edward L. Peck, New York; On the Position of the

Eyes When at Rest, by Lucien Howe, Buffalo; The Smallpox Problem, by Ernest Wende, Buffalo; The Civilized Indian: His Physical Characteristics and Some of His Diseases, by A. D. Lake, Gowanda; Indian Medicine, by Nelson W. Wilson, Buffalo; *Symposium on Paresis:* (1) Etiology of Paresis, by Arthur W. Hurd, Buffalo; (2) The Early Diagnosis of Paresis, by Francis X. Dercum, Philadelphia, Pa.; (3) Comparative Frequency of Paresis, by Charles W. Wagner, Binghamton; (4) Pathology of Paresis, by Henry J. Berkeley, Baltimore, Md.; (5) Treatment of Paresis; Its Limitations and Expectations, by Edward Cowles, Boston, Mass.; Ringworm; a Note on its Treatment, by George Thomas Jackson, New York; A Case of Epilepsy with Possible Medico-legal Complications, by Frederick Sefton, Auburn; Acute Lymphatic Pseudoleucemia, with Report of Case and Autopsy, by John L. Heffron, Syracuse; The Changes of the Leucocytes in Disease as an Aid to Diagnosis and Prognosis, by Thomas R. Brown, Baltimore, Md.; An Unusual Case of Abscess of the Liver, by Edgar A. Vander Veer, Albany; Gunshot Wounds of the Liver, with Report of a Case, by E. W. Mulligan, Rochester; Concerning the Surgical Treatment of Peritoneal Tuberculosis, by John W. Whitbeck, Rochester; Unusual Herniæ, with a Report of Complete Hernia of the Bladder, Complicating a Strangulated Hernia, Requiring Resection of the Bowels, by John B. Harvie, Troy; *President's Address:* The Value to a Physician of Modern Methods of Diagnosis, by Henry L. Elsner, Syracuse; A New Symptom in the Diagnosis of Dystocia, Due to a Short Cord, by Samuel M. Brickner, New York; Pneumonia in Young Children, by W. P. Northrup, New York; A Contribution to the Surgery of the Chest, with a Clinical Report of Illustrative Cases, by Willis G. MacDonald, Albany; Partial Rupture of the Cecum from Obstruction and Distension; Operation; Recovery, by William Edwin Butler, Brooklyn; Tendon Transplantation in the Treatment of Paralytic Deformities, by Arthur W. Elting, Albany; *Symposium on Diseases of the Pancreas:* (1) Physiology and Physiological Chemistry of the Pancreas, by Prof. R. H. Chittenden, New Haven, Conn.; (2) Pathology of Pancreatic Diseases, by George Blumer, Albany; (3) The Diagnosis of Diseases of the Pancreas, by W. S. Thayer, Baltimore, Md.; (4) The Surgery of the Pancreas, by Roswell Park, Buffalo; (5) Clinical Indications for Surgical Interference in Acute Pancreatitis, by Joseph C. Bloodgood, Baltimore, Md.; Pneumogalactocele of the Breast, by J. Milton Mabbott, New York; A Simple Method for Determining the Percentage of Milk in Home Modifications, by Rowland G. Freeman, New York; Colles' Fracture, by D. W. Houston, Troy; Obesity of Adolescence, by Heinrich Stern, New York; An Unique Case of Double Dacryo-adenitis, by D. H. Wiesner, New York; Puerperal Hemorrhage, by George Seymour, Utica; What Shall Be Done with the Professional Midwife? by M. J. Lewi, New York; The Influence of Certain Diseases of the Nose and Throat on the Middle Ear, by Wendell C. Phillips, New York; A Further Contribution to the Study of Summer Diarrhea among Out-patients, by Charles G. Kerley, New York; Papers by V. G. Gibney, New York, and Charles H. Jewett, Brooklyn, titles to be announced.

PHILADELPHIA.

Medical Club Elects Officers.—The Medical Club of Philadelphia at its tenth annual meeting, held January 16th, elected the following officers: President, Dr. E. L. Duer (reelected); Vice-Presidents, Drs. Thomas H. Fenton and A. McAllister; Secretary, Dr. Guy Hinsdale; Treasurer, Dr. F. Savary Pearce. The Club now has 365 members and a sinking fund of $5,000. It is intended to devote this money to the purchase or erection of a suitable club-house.

Result of State Examination.—At the December meeting of the State Examining Board, 105 candidates were examined by the Allopathic Board, 21 of whom failed to pass. Of the 9 examined by the Homeopathic Board, 4 failed to attain the required average.

Hospital in Need of Assistance.—St. Timothy's Hospital, Roxborough, has recently been improved to meet the needs of its rapidly-growing work and has incurred a debt of $11,000. Until this is paid further urgently-needed additions must be postponed. It is the only hospital in a district of about eight miles square.

Coroner's Work for the Year 1901.—The work devolving upon Coroner Dugan in 1901 was greater than that of any other one year in the history of the office. Inquests were held in 2,793 cases; in 817 other cases investigated, inquests were thought unnecessary. Among the most important inquests were those on a boiler explosion on a steamboat, causing 24 deaths; the Market Street fire, which cost 22 lives; the Locust Street gasoline explosion with 8 deaths, and the Point Breeze oil fire which resulted in the death of 3 firemen. Special juries were impaneled in the above cases and their findings have resulted in the enactment of laws to prevent the repetition of such catastrophes.

Improvements at the Samaritan Hospital.—Plans have been made for the enlargement of the Samaritan Hospital to afford facilities for instruction to the classes in medicine at Temple College, the night school of medicine referred to in a previous issue. Two wings are to be added to the hospital, one 40 by 52 feet and the other 40 by 80 feet. In time the present building will be torn down and a wing like the larger one mentioned erected. In all improvements aggregating nearly half a million dollars are planned. The College holds only evening sessions and issues diplomas to its students only after they have passed the State Board of Medical Examiners.

Pink-eye Epidemic.—About 3,000 cases of "pink-eye" are reported in this city. Its prevalence is thought to be due to the insanitary condition of the streets because of their torn-up state.

The Wiener Verein.—This society, composed of physicians who have studied in Vienna, held its second annual meeting January 11th. Dr. James Tyson was elected president for the ensuing year.

County Medical Society Favors Vaccination.—On January 15th, for the first time since the present outbreak of smallpox, the Philadelphia County Medical Society placed itself on record regarding the disease in the following emphatic manner:

"*Whereas,* Smallpox is continuing to spread among the people of the city; and

Whereas, Sensational newspaper articles minimizing the importance of vaccination have caused a number of people to refuse the vaccination offered by the city physicians; and

Whereas, Of the 977 cases of smallpox admitted to the Municipal Hospital during 1901 there was not a single patient who had been successfully vaccinated within a period of four years, those afflicted being almost exclusively unvaccinated persons or adults unvaccinated since infancy; therefore be it

Resolved by the Philadelphia County Medical Society, representing the physicians of the city and county, That this Society deems it necessary to impress upon the community that universal vaccination is the most effective means of stamping out smallpox,

and that, although fumigation and disinfection are valuable adjuncts, they can by no possibility do away with the necessity for vaccination, since smallpox patients are the most important carriers of infection, and such infection cannot be influenced by the disinfection of smallpox. Be it further

Resolved, That publications which slur the importance of vaccination despite the incontrovertible testimony of 100 years are to be deprecated as contrary to the best interests of the community. Such articles are known to have dissuaded people from vaccination who have subsequently died of smallpox."

CHICAGO.

Officers of the Medical Examiners' Association.—At a meeting of this Association, held January 15th, the following officers were elected: President, Dr. Alfred C. Cotton; Vice-President, Dr. William E. Casselberry; Secretary, Dr. David J. Doherty, and Treasurer, Dr. C. P. Stringfield.

Chicago Neurological Society.—At the annual meeting of this Society, which was held January 16th, Dr. Daniel R. Brower was elected President; Dr. H. H. Donaldson, Vice-President; Dr. Charles Howard Lodor, Recording Secretary; Dr. Sydney Kuh, Treasurer, and Dr. Hugh T. Patrick, the retiring President, a member of the Council.

The Chicago Lying-in Hospital Dispensary.—This institution reports 2,000 consecutive confinement cases without a maternal death. In 3,763 consecutive labor cases, under the exclusive care of the dispensary, two mothers died, both from spontaneous rupture of the uterus. There were only eight septic fever cases. In two the uterus was cleaned out; in none was any other local treatment instituted. The number of directors has been decreased from 11 to 9.

Examinations of State Board of Health.—An unusually large number of candidates for medical certificates of practice took the examinations of the State Board of Health at its quarterly meeting at the Great Northern Hotel, January 16 and 17, 1902. Dr. James A. Egan, Secretary of the Board, presided. There were 49 candidates for physicians' certificates and 24 osteopaths. Four candidates for mid-wife certificates were also present. Dr. George W. Webster, of Chicago, is the President of the Board.

Officers of the Chicago Ophthalmological and Otological Society.—At the annual meeting of this Society, held January 14th, the following officers were elected: President, Dr. Wm. H. Wilder; Vice-President, Dr. C. P. Pinckard; Secretary-Treasurer, Dr. Brown Pusey; Committee on Membership, Dr. Casey A. Wood, Chairman, Dr. C. D. Wescott, and Dr. Lyman Ware. Dr. George F. Suker was elected to membership.

To Entertain Professor Haab of Zurich.—A committee, consisting of Drs. Frank Allport, F. C. Hotz, and Casey A. Wood, was appointed to take charge of the entertainment of Professor Haab, who contemplates visiting America this summer and will doubtless read a paper before the Ophthalmological Section of the American Medical Association.

Membership in Ophthalmological Society.—In view of the fact that there is a large number of applications for membership in this Society, Dr. H. V. Wurdemann of Milwaukee offered the following amendment: "Hereafter applications for membership in the Chicago Ophthalmological and Otological Society must be accompanied by a written original thesis upon some eye, ear, nose or throat subject, which is to be submitted to the Membership Committee and approved, then read and defended by the author in open meeting; the election to be held at the next meeting of the Society." This amendment will come up for adoption or rejection at the next monthly meeting.

Report of Illinois Factory Commission.—According to the annual report of the State Factory Commission, the employment of child-labor in Illinois has increased 39 per cent. in the last year. In 1900, the inspectors found 14,256 children at work in the factories, and in 1901 the number had grown to 19,839. During that time the increase in manufacture was only 9 per cent., and of women employed 16 per cent.; the gain in the total employed was 12 per cent., or less than a third of the increase in child-labor. The total number of convictions on account of the disobedience of the Child-Labor Law was 725.

Uniform Laws for Physicians.—Uniform medical legislation and universal recognition of certificates of State Boards of Health in all States are the objects of the "Reciprocal Federation of State Medical and Examining Boards," which was organized at a meeting held at the Great Northern Hotel, January 17th. Representatives of the States Boards of Illinois, Indiana, Wisconsin, and Michigan were present at the meeting, and communications were received from the State Boards of Ohio and Iowa to the effect that those organizations were in accord and sympathy with the movement. The new organization has long been desired by the medical profession, and it is expected that it will soon become national in character and will be supported by the various Medical Boards in every State in the Union. Another meeting will be held in May in Chicago and every State will be invited to send representatives. The prime object of the Association is to effect a uniformity of rules governing the examination and admission of physicians to practice. Heretofore each State has made its own laws, without regard to the laws of other States, which frequently has resulted in many hardships to members of the profession. A physician desiring to practise in a State other than the one in which he was first examined and granted a certificate would be required to stand the second examination and pay another fee. If he desired during his lifetime to practise in ten States, he would be compelled to submit to ten examinations. Under the reciprocal plan the certificates issued after an examination in one State will be good in the other States belonging to the organization. The examination required by the Federation may be more rigid than those required in many of the States at the present time, but, when once passed and a certificate issued on them, it will admit the holder to practice in all the other States. It is said that the plan was first proposed by Dr. Emil Amberg of Detroit, Mich., and set forth in the MEDICAL NEWS, and has been a subject of discussion in medical societies and in various State Boards for years. It is only recently that active steps were taken to form such an organization.

Officers of the Reciprocal Federation of State Medical and Examining Boards.—President, Dr. J. R. Currens of Two Rivers, Wis.; Vice-President, Dr. James M. Dinnen, of Fort Wayne, Ind.; Treasurer, Dr. Wm. A. Spurgeon, of Muncie, Ind.; Secretary, Dr. B. D. Harrison, of Sault St. Marie, Mich.

Modern Dietetic Preparations.—Dr. Arnold C. Klebs, in a paper on this subject, read before the Chicago Society of Internal Medicine, directed attention to the great progress made in this line and especially in the manufacture of nutrient preparations. In this country the progress in the manufacture has not kept pace with the advances of physiological chemistry and most of the preparations are of foreign make. Many

of the preparations are furnished at a relatively high cost and astonishingly small food value, and frequently have only a *raison d'être* on account of their stimulating qualities produced by a higher percentage of extractive substances and salts or by the addition of alcohol. The dietetic value of a good preparation is determined chiefly by its actual food value, determined by the amount of assimilable albumin it contains. The price of such albumin should not be higher than that contained in ordinary foodstuffs. The advances already made have opened possibilities to reduce the price even below this. Possible objections against the prolonged administration of such preparations should be overcome (1) by their having a pleasant taste or none at all; (2) by their small bulk, so that they can be given without overloading the digestive tract; (3) by their not being irritative to the digestive organs, even after prolonged use; (4) by their ready utilization in the metabolism, which can only be determined by experiment; (5) by their low price. These desiderata were fulfilled by a number of preparations now on the market. The author reports several analyses of the better known preparations. As nutrient additions to the diet, the pure albumin preparations, tropon, plasmon, soson, etc., with from 75 to 90 per cent. of assimilable albumin, have proved of the greatest value. The albumoses (somatose) can not be administered in doses sufficient to maintain the nitrogen equilibrium, but in small doses have nutrient value and are powerful digestive stimulants. The peptones, on account of their bitter and unpleasant taste and their irritating properties to the digestive organs, can practically be abandoned. The value of the larger number of other predigested foods is also, to say the least, doubtful. Meat extracts and liquid beef preparations can be used as valuable appetizing additions to the diet. The various carbohydrate and fat preparations, as well as the different combinations, were enumerated.

Pneumococcic Arthritis.—Dr. James B. Herrick read an abstract of a paper on this subject. He referred to the rarity of this condition, which occurs most frequently as a complication of acute croupous pneumonia. Cave, who reported a case in January, 1901, was able to find only thirty-one cases recorded in the literature. To this number Dr. Herrick adds seven, three of them being cases that had come under his own observation. These cases tended to confirm what had been previously observed by Leroux and others, *i.e.*, that the condition is most frequently met with in the larger joints; that it rarely occurs except as a complication of pneumonia, and that it is most likely to appear late in the disease or during convalescence. The influence of trauma was shown by the records of two cases. The prognosis is in general bad, because the condition occurs in those who are already ill of a serious disease, and because there is in these cases a pneumococcic septicemia, frequently with other localization in structures more vital than the joint. Death in many of these instances is due, not to the involvement of the joint, but to a coexisting empyema, endocarditis, pericarditis, or meningitis. The treatment that must be employed is as a rule surgical, yet some cases, particularly those in which the fluid in the joint was not purulent, make good recoveries under simple aspiration. Two such cases were reported by Dr. Herrick; in one of them, in which there had been an involvement of the elbow joint, the fluid withdrawn by aspiration was distinctly purulent. A recovery had followed in both instances.

Heart Failure and the Acute Infectious Fevers.—The author of this paper, Dr. N. S. Davis, Sr., had seen several cases of severe pneumonia, typhoid fever and diphtheria, in which the patients had been for several days taking from ten to sixteen ounces of whisky or brandy every twenty-four hours, with three hypodermic injections of strychnine, and liberal doses of digitalis, all for the sole purpose of strengthening the heart, and without the slightest reference to the special pathological conditions in each case causing the heart to be weak. He is satisfied that nearly all the cases of serious cardiac weakness or heart failure met with in practice are caused either by deficient oxygenation and decarbonization of the blood, by impairment of the action of the cardiac and vasomotor nerves, or by direct degenerative changes in the muscular structure of the heart itself. The most rational and important indications for treatment in established cases of pneumonia, diphtheria, typhoid and other infectious fevers are to aid Nature's own processes by securing for patients abundance of fresh pure air, strict cleanliness, free sponge bathing, pure water to drink, and the use of such diaphoretic, diuretic, and alterative medicines as will prompt, at least, natural activity in all the excretory structures of the body. It is equally important to avoid the giving of all such antipyretics and so-called cardiac stimulants as are known to diminish hemoglobin and free oxygen in the blood and to lessen both tissue metabolism and excretion. By their anesthetic and analgesic effects, they allay pain, quiet restlessness, lessen the pyrexia temporarily, but they directly favor the retention of the toxic agents in the blood until an unexpected fatal collapse ensues which is attributed to heart-failure. Although he has practised medicine many years, he has never seen a case of fatal heart-failure while that organ was supplied with well oxygenated arterial blood, while the metabolic and excretory functions were fairly active. But he had known many cases of both acute and chronic disease in which death resulted directly from both respiratory and cardiac paralysis, preceded by deficient internal distribution of oxygen and lessened activity of both tissue metabolism and excretion, while they were under the persistent influence of anesthetic and narcotic drugs.

Posterior Urethral Reinfection from the Bladder.—Dr. Louis E. Schmidt read a paper on this subject before the Chicago Medical Society. It is not unusual to observe acute relapses in the course of chronic urethral diseases. Harrison was the first to direct attention to recurrences of urethral reinfection after the healing of the posterior urethral inflammation from areas of the bladder which still continued to be affected. Harrison does not cite specific cases, but mentions the subject in a general way. For this reason it has appeared desirable to state the facts in closely-observed cases. Wertheimer and Kolischer have described cases of this kind in the female. Neither dilatation, massage of the posterior urethra and adnexa, irritating instillations, the drinking of beer or champagne, nor the sexual act will cause a relapse in these cases under consideration. These mechanical and chemical irritants would probably in most cases cause a relapse if the process were in the posterior urethra. Urethroscopy shows normal conditions except possibly more or less chronic changes. But, if these patients subject themselves to pernicious irritants which partly affect the bladder, a recurrence of the posterior urethral inflammation appears in a short time and a typical posterior gonorrhea results. Thus, reinfection occurring from the bladder can be proved with a certainty. The course is usually as follows: After the acquisition of a "cold," after the partaking of irritating foods or even after chronic constipation, cardinal symptoms of cystitis make their appearance. The patients who

never have had or possibly only have had slight symptoms referable to the bladder are taken suddenly ill. Frequently a chill is the premonitory symptom and often a fever continues. Then, in the course of two or three days a urethral discharge, which is usually never copious, makes its appearance, varying somewhat in color and consistency with the presence of the gonococcus. With all this the typical signs and symptoms of a posterior urethritis become apparent. If under rational treatment the posterior urethral inflammation is allayed and the acute bladder symptoms are made to disappear, there is apparently no involvement of the bladder; yet, when the bladder is again subjected to the agents already mentioned, the same course of events may recur. A more careful examination of these cases reveals the following conditions: The trigonum is the seat of a chronic inflammation; the characteristics luster is lost; the vessels are apparently obliterated; the mucous membrane appears like dark red velvet, and within the area, here and there, are distributed brownish-red spots of varying size. The posterior border of the internal urethral orifice is swollen; the epithelial cells edematous, and these sway more or less like a net in the fluid which fills the bladder. The practical deductions from these observations are that every case of apparently-cured chronic posterior urethritis, if doubt exists, should be cystoscoped in order to recognize any latent bladder disease, and, if such be present, it should be treated accordingly. Old and circumscribed cases of trigonum cystitis always require energetic treatment. If it is not possible to attain the desired object with instillations, the entire granulating surface of the trigonum can be thoroughly curetted in order to obtain a permanent cure. This procedure is readily done under local anesthesia with a Kolischer cystoscope.

CANADA.

Gift to Science.—Mr. E. S. Bronson, a prominent citizen of Ottawa, Ont., has donated a large sum of money to the McGill Medical Faculty for researches in the possible methods for the cure of consumption. Dr. A. G. Nichol will conduct the work under the supervision of Professor Adami.

Lecture by Sir James Grant.—"How to Live to Prolong Life" was the subject of a lecture delivered one evening last week in Toronto by Sir James Grant, Ottawa, who has been physician to Canada's Governors-General since the time of Lord Monck. The lecture was in aid of the Women's Residence of Victoria University, and during its deliverance Sir James took occasion to advocate the medical inspection of schools and his opposition to a prohibitory liquor law for Ontario.

New Civic Hospital for Montreal.—At a recent meeting of the Hygienic Committee of Montreal, Dr. Laberge, the Medical Officer of Health, presented an important report upon the great necessity for a new Civic Hospital for that city. The present hospital has been used for the recent outbreak of smallpox, and the city is now without a regular hospital for patients suffering from diphtheria or other contagious diseases.

Amalgamation of Medical College and Hospital.—The Governors of the Western Hospital, Montreal, and the Governors of the Medical Faculty of Bishop's College University, respectively, have come to a definite understanding that it will be in the interests of both institutions if an amalgamation be effected. Owing to the increased prosperity of the Western Hospital, a new building has long been desired, and under the present arrnagements this will be carried out at once and the Medical Faculty of Bishop's will take possession of the old hospital building when the new hospital is completed. This is expected to be about the beginning of the autumn session of 1893.

Vaccination Items.—"The Saints," a local sect near St. Catherine's, Ont., are causing trouble for the health authorities in that district. An outbreak of smallpox has occurred among them, but they all refuse on any terms to be vaccinated. They have, therefore, been quarantined *en masse*. Dr. Bryce has been consulted in the matter and has advised that the employment of force will be quite justified, and it will be a case of get vaccinated or go to jail.—The number of people vaccinated in Montreal since last October up to the present time totals 19,000.

Personals.—Dr. Phillips Weatherbe of Wolfville, N. S., has been apointed as supernumerary to the Canadian Field Hospital for South Africa.—Drs. Leslie and Jennie Dow of Toronto return for the China Mission Field on January 27th.—Principal Petersen, Dean Roddick of the Medical Faculty and Dr. Ruttan will represent McGill University at the annual dinner of the New England Society of McGill graduates to be held at Boston on January 23d.—Dr. E. P. Lachapelle is a candidate for mayoralty honors at the coming municipal elections of Montreal.—Dr. A. G. Macdougal, house surgeon of the General Hospital, Toronto, has been appointed civil medical attaché to the regiment in charge of the Boer prisoners at Hamilton, Bermuda.—Dr. Telesphore Parizeau has returned from abroad and has been appointed professor of pathological anatomy at Laval University, Quebec.—Dr. O. Bjornson of Winnipeg and Dr. B. J. Bjornson of North Dakota left Winipeg January 9th for a year in European hospitals; both are graduates of the Manitoba Medical College and were formerly house surgeons at the Winnipeg General Hospital.—Dr. Gordon Bell, provincial bacteriologist of Manitoba, and Dr. Holmes Simpson, secretary of the Board of Health, left Winnipeg January 13th for St. Paul, where they will attend a convention of medical men for the purpose of discussing the smallpox outbreak in districts between St. Paul and Winnipeg.—Dr. Macdonald, superintendent of the hospital at Dawson City, is paying a visit to Montreal; he states that there has been comparatively little sickness in the Yukon this year.—Dr. W. H. Groves, a graduate of Toronto University, has been appointed surgeon of the R. M. S. "Sekondi," flagship of the African Steamship Company, plying between Liverpool and the West coast of Africa.—The Hon. Dr. W. H. Montague has returned to Canada after having spent a year in New Zealand, Australia, in the interests of the Independent Order of Foresters.—Dr. N. A. Powell, President of the Ontario Medical Association, entertained Dr. W. H. Drummond of Montreal, the author of "L'Habitant" and "Johnny Corteau" on the evening of January 17th while the latter was in Toronto to deliver the first Toronto University Saturday afternoon lecture of the present season. A large number of the medical fraternity spent a most enjoyable evening with both gentlemen.

Indian Vital Statistics.—The aggregate increase of the total Indian population for the whole of Canada is 517 over last year, the population in 1901 being 99,527. There were 2,479 births during 1901 and 2,240 deaths. In 1900 there were 2,333 births and 2,567 deaths. Female child-marriage is still to some extent practised among the Blackfeet, Piegans and Bloods, and in order to put it down entirely prohibition of the custom may eventually have to be resorted to.

GENERAL.

Centenarians in Germany.—Insurance tables show that in Germany only one person in 10,000 reaches the age of 100 years.

VI. French Medical Congress.—This Congress will be held at Toulouse during the Easter holidays. Prof. Lemoine will preside.

No Smallpox in Hackensack.—It has been stated that, notwithstanding the reports concerning an outbreak of smallpox which were noted in the Medical News of January 11th, there is not a case of smallpox in Hackensack, N. J., nor has there been any for the past two years.

To Found a Sanatorium in Colorado Springs.—Gen. William J. Palmer has donated 100 acres and $50,000 to found a sanatorium in Colorado Springs. As already planned, two buildings will cost $200,000 and $50,000 respectively. The first will accommodate 100 patients who are able to pay a fair price for treatment. The class who can pay little or nothing will be accommodated in the other building to the number of fifty. Revenue from the large building will mainly support the smaller one. The sanatorium will be conducted on the German theory. The sanatorium will be east of the city, to procure the purest air and freedom from dust and smoke. The medical staff and the board of trustees are yet to be selected. A company will be incorporated. A large part of the money has already been subscribed.

Labrador Medical Mission.—Along more than a thousand miles of seacoast in Newfoundland and Labrador there are no doctors except those of the Labrador Medical Mission. Yet medical service is greatly needed. The resident and summer population of these coasts reaches from twenty to forty thousand. Life is a hard struggle for them and disease is frequent. They are largely subject to accidents, poisoned wounds, eye-disease, digestive troubles, scurvy, consumption, and various epidemic diseases. Their only possible relief from these conditions and from the terrible suffering, crippling, death and destitution resulting from them comes from the work of the Mission. This Mission deals with over 2,000 cases every year. It maintains a finely-equipped hospital steamer and two hospitals on the Labrador shore and is building a third hospital in Northern Newfoundland.

Journal of Obstetrics and Gynecology of the British Empire.—This new journal, noted in our "London Letter" of some time past, is just to hand and editors and publishers alike deserve credit for its excellent appearance. It is a large octavo of 128 pages, handsomely printed and well bound. An analysis of its contents will shortly be given in the "Medical Progress" columns of the Medical News.

Dr. Rixey to Succeed Van Reypen.—The expected application of Rear Admiral William K. Van Reypen, Surgeon-General of the Navy, for retirement after forty years' active service, was made to the Secretary of the Navy January 15th. Admiral Van Reypen will be succeeded by Medical Inspector Presley M. Rixey, U.S.N., who was attending physician to the McKinley family and is now occupying a similar position with the Roosevelts.

Obligatory Hospital Service.—A year's service in a hospital has been made obligatory to the medical graduate in Budapest; four months are to be given to the medical wards, two to the surgical and two to the gynecological; the remaining four months are to be passed in any department selected by the interne.

Obituary.—The death of Hugo von Ziemssen, in Munich, January 21st, removed one of the greatest medical and scientific men of the age. He was born in Greifswald December 13, 1829, and during the epoch-making latter half of the nineteenth century was one of the leaders of scientific thought. With the praise that is given to such men as Pasteur, Koch, Virchow, and others who have opened the avenues of pure science and revolutionized theories, we sometimes forget that their discoveries must be made practical in the hospitals and clinics before they receive their valuation stamp and will pass as scientific currency. Ziemssen was a master clinician and a great physician. The scientific institute for clinical instruction which he established at Munich has served as a model for all lands. His practical experiments in applying the discoveries of the age to the practice of medicine have appeared in authoritative treatises on the cold-water treatment of typhoid fever, the treatment of pneumonia, tumors of the stomach, and on a vast number of other subjects, among which the use of electricity in medicine is important. He is best known to physicians the world over by his enormous seventeen-volume work, "Handbuch der speciellen Pathologie und Therapie," popularly known in America as "Ziemssen's Encyclopedia," which he wrote in collaboration with other eminent specialists. He was also for thirty-seven years the coeditor with Zenker of the *Deutsche Archiv für klinische Medicin*. Probably no one man did more in the last half century to deserve the name of "Great Physician" than Ziemssen through his writing and his medical work.

Dr. William Mervin Smith, who for twelve years was Health Officer of the Port of New York, died in Redlands, Cal., Friday, January 17th, in his seventy-sixth year. He had an active career in politics, being twice elected to the Legislature and several times a delegate to national conventions, notably to that at which Lincoln was nominated. He was also Surgeon-General on Governor Dix's staff, and in the Civil War was Surgeon of the Third Brigade. He lived in Brooklyn for many years after his retirement from office.

Dr. Torrance Sparham of Brockville, Ont., the oldest practitioner in that town, died suddenly January 11th at the age of eighty-nine years. Dr. Sparham was graduated from McGill University and had resided in Brockville for forty years. He was of an inventive turn of mind and had patented artificial limbs which are said to be still largely in use.

Dr. Charles L. Bonnell, a prominent physician and surgeon, died recently at his home, No. 3 Hanson Place, Brooklyn. He was born in Dublin in 1848 and was graduated from Wesleyan College in 1868. After two years at the College of Physicians and Surgeons, in New York City, he received the degree of M.D. from the Hahnemann Medical College in Philadelphia. He was resident surgeon and lecturer at the Brooklyn Homeopathic Hospital and was chief of staff for six years. He was also a member of the staff and lecturer at the Brooklyn Mechanical Hospital and consulting surgeon at the Memorial Hospital for Women and Children. He was a member of the New York State Homeopathic Medical Society and of the Kings County Homeopathic Medical Society.

Dr. J. T. Eskridge, neurologist and alienist, died of tuberculosis in Denver January 16th at the age of fifty-four years. Because of pulmonary tuberculosis, Dr. Eskridge went to Colorado in the early eighties and soon after arriving there devoted himself entirely to the specialty in which he became distinguished. He was a Fellow of the American Neurological Association and was neurologist to various hospitals in Denver.

Dr. Clayton Parkhill, well known as a surgeon and

a writer, died in Denver January 16th at the age of forty-one years. Dr. Parkhill was a fellow of the American Surgical Association, a member of the American Medical Association and of various State and local societies. He had practised surgery in Denver continuously for fifteen years and enjoyed a wide reputation and an excellent practise.

Resolutions Concerning Death of Dr. Parkhill.—The following resolutions were adopted by the Medical Board of St. Luke's Hospital, Denver, on the death of Dr. Clayton Parkhill: "The medical and surgical staff of St. Luke's hospital is called upon to mourn the death of one of its most prominent members.

"Dr. Clayton Parkhill was appointed attending surgeon to the hospital in 1887 and served continuously in that capacity until his death. As a surgeon he was painstaking, intelligent and careful, successful in his work, kind and gentle in the treatment of his patients. As a man, he was courteous and amiable; as a colleague he was companionable and helpful.

"Dr. Parkhill was one of the most brilliant of operators and the profession is indebted to him for many useful and practical surgical inventions. His counsel was eagerly sought by students and practitioners. As a writer he was clear and forcible; as a lecturer he was eloquent and thorough. He was in truth among the distinguished of American surgeons and did much to shed luster on his chosen profession. At the breaking out of the Spanish-American war he was among the first to respond to the call of duty and as a military surgeon he deservedly held high rank.

"The staff of this hospital desires to record its appreciation of his long and valuable services to the institution and of his many endearing personal qualities; and it extends to his bereaved family and friends its profound sympathy."

Dr. Kingston Goddard, coroner of Philadelphia from 1874 to 1877, died of Bright's disease on January 19th.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, January 11, 1902.

A CANCER CRUSADE—THE SINEWS OF WAR NEEDED—CANCER RESEARCH IN ENGLAND—THE PROFESSION OF SCOTLAND AND THE GENERAL MEDICAL COUNCIL—VIOLET LEAVES IN CANCER: SEQUEL OF THE CASE OF "CURE"—THE MEDICAL PROFESSION OF GREAT BRITAIN AND TEETOTALISM.

THE munificent donation for the purposes of the crusade against consumption mentioned in my last letter has aroused a hope that a benefactor may come forfard to help in the fight against cancer. One or two efforts have been made within the last few years to organize a league against that fell disease, the ravages of which seem to become more extensive every year, but initiated by obscure, though doubtless well-meaning men, they have flickered out almost at once. It is stated in some of the daily papers that "a scheme is ready to hand, framed under the joint auspices of the Royal Colleges of Physicians and Surgeons, for the conduct of the continuous investigation that is necessary; but for this purpose at least £100,000 is required." I have no doubt that $500,000 would be of considerable use in such a research, though it is quite possible that much more would be required, for Nature does not sell her secrets for gold. But it is not the fact that a scheme of any kind has been framed by the Colleges. The matter is, I believe, under consideration by the authorities of the two Colleges, but no definite agreement has been arrived at. Systematic researches on the pathology of cancer have for some time past been carried on in a laboratory attached to the Middlesex Hospital, which has had a special cancer ward since 1792. Two years ago a wing intended exclusively for female sufferers from cancer was opened. This wing has accommodation for forty cases, while a ward in the main building, with nine beds, is reserved for male patients. They are kept in the hospital till they are cured or till they find surcease of suffering in death. There is thus a large amount of material for the study of cancer in all its aspects, and much may be hoped from the work of Mr. A. G. R. Foulerton, the director of research, and his assistants. But they are hampered by want of sufficient funds. At the Cancer Hospital there has been in existence for many years a pathological department in which experimental research has been carried on. Here, too, the workers are crippled by want of adequate means, and an appeal has been made to the charitable public for help. The governing body of the hospital has now under consideration a scheme for greatly enlarging their laboratories with the view of making the work of investigation more extensive and more thorough. The public which takes its tone, as far as it can, from the King, will probably subscribe with fair liberality, for His Majesty delivered himself not long ago of an opinion that the investigation of cancer was a matter of urgent importance. The antivivisectionists, however, who would apparently prefer that the human race should be decimated by cancer than that a mouse should feel the prick of the inoculation-needle, are doing their best to divert subscriptions from hospitals which have research laboratories connected with them. They would doubtless have denounced the provision for research that is to be a feature of the King's sanatorium, but that they know they would damage their cause in the eyes of the British public by associating it with even the appearance of disloyalty. In this way our worship of royal idols sometimes works for good.

Reference has been made in previous letters to the profound indifference with which the medical profession in this country regards the question of medical reform. At the recent election of direct representatives on the General Medical Council more than half the profession in England did not vote. In Scotland, where, according to the testimony of Professor Clifford Allbutt and other English authorities, the intellectual standard of the average practitioner is higher than it is in England, considerably more than a third abstained from voting. The fact is that the frame of mind of the bulk of the profession in regard to reform is that of Gallio, who "cared for none of these things." A good illustration of their attitude toward our Medical Senate was afforded by a member of the profession, who, when urged to vote, asked, "What is the General Medical Council? Who are its members? Where does it meet? What does it do? What interest is it to me?" The hopeless apathy revealed by such questions is the greatest obstacle in the way of reform. But it is the reformers themselves who are in large measure responsible for the indifference which they are now at last beginning to recognize, for their foolish and impracticable proposals, their unstatesmanlike methods, and their violent language, have made most people look upon them as intolerable bores.

Some time ago I related for the edification of your readers the strange eventful history of an old lady who had got rid of a malignant tumor in the throat and neck, apparently as the result of the application of an infusion of violet leaves. I note that a contemporary which supplies sweetness and light to the medical profession of the City of Brotherly Love speaks of the story as a "fake." That it looks like a "fake" may be admitted; but, whatever explanation of the sequence of events may ultimately be forthcoming, it certainly is not a

"fake." The old lady is still quite well. There is a deep cavity in her throat where the tumor was, but no ulceration; on the outside of the neck there is nothing abnormal to be seen. Sections of the growth, which was pronounced by the Clinical Research Association and various histological experts to be of epitheliomatous character, have since been submitted to our highest authority on such matters. His judgment, given without any knowledge of the clinical history, was that, though not epitheliomatous, it was certainly malignant. After learning the facts of the case, however, his opinion seems to have become considerably less definite. Evidently, we have still a great deal to learn about cancer and malignant disease generally. It would further progress if the profession were to adopt a less Nihilistic attitude in regard to the disease, and especially if it were to keep what Gladstone called an "open mind" on the subject and not refuse to consider reports of cure simply because they are improbable. The issue of the case which has made such a sensation (deeply deplored, it is said, by the patient herself) is awaited with great interest.

Prominent members of the medical profession in this country have on several occasions made proclamations *urbi et orbi* on the subject of alcohol. The first which was drawn up by Mr. Julius Jeffreys, a Fellow of the Royal Society, in 1839, was signed by most of the leaders of the profession of that time, including Sir Benjamin Brodie, Sir James Clark, the trusted physician of Queen Victoria in the early days of her reign, Marshall Hall, Robert Lee, Partridge the anatomist, Richard Quain (not *Sir* Richard), President of the Royal College of Surgeons, Benjamin Travers and many others. The utterance is described as an outspoken declaration in favor of total abstinence. A second declaration to the same effect was made in 1847; it was signed by over 2,000 practitioners, among them being such men as Addison, Bright, Brodie, W. B. Carpenter, Copland (of the "Dictionary"), Henry Holland, Paris (author of *Pharmacologia*), Pereira, Prout, Forbes Winslow and others of light and leading, to use a phrase of Edmund Burke's appropriated by Lord Beaconsfield. A third manifesto issued some years later and signed by three hundred consulting physicians and surgeons was not so much a condemnation of alcohol as a protest against its therapeutic abuse, which was the result of the teaching of Anthony Todd Thomson and his disciples. The practice of total abstinence has now become considerably extended among members of the medical profession in Great Britain. It is estimated that there are in this country at least a thousand practitioners who not only preach abstinence, but practise what they preach. There is a British Medical Temperance Association which feels itself strong enough to make the propaganda of which it is the organ more aggressive in character. Acting in conjunction with the American Medical Temperance Association and the corresponding association in Germany it has decided to issue an international manifesto, declaring that "seeing that the common use of alcoholic beverages is always and everywhere followed, sooner or later, by moral, physical and social results of a most serious and threatening character, and that it is the cause, direct or indirect, of a very large proportion of the poverty, suffering, vice, crime, lunacy, disease and death, not only in the case of those who take such beverages, but in the case of others who are unavoidably associated with them, we feel warranted, nay, compelled to urge the general adoption of total abstinence from all intoxicating liquors as beverages, as the surest, simplest and quickest method of removing the evils which necessarily result from their use." The document is to be signed by doctors who are total abstainers.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

SMALLPOX AND VACCINATION.

J. MacCombie at the Hunterian Society, November 13, 1901, read a paper upon the differential diagnosis of smallpox which embodied also a communication upon the subject of vaccination. He says that he disregards the ethical aspect of vaccination and bases his observations solely upon smallpox hospital statistics and his own hospital experience. The hospital case-mortality in unvaccinated smallpox patients is from forty-five to fifty per cent., in vaccinated patients about eight per cent. The severity of an attack of smallpox in vaccinated subjects bears relationship to the efficacy of the vaccination. The basis of the smallpox statistics in London is the number and quality of the vaccination scars. Viewed in this light nearly twelve thousand cases of smallpox in vaccinated subjects show the following results: One good scar, 6.4 per cent.; two or three good scars, 3.7 per cent.; four or more good scars, 2.7 per cent.; one poor scar, 16.7 per cent.; two poor scars, 11.2 per cent.; three poor scars, 7.4 per cent.; four or more poor scars, 4.8 per cent. The case-mortality is therefore inversely proportioned to the number of deep scars; the range is as just stated. When he was treating the disease in the South Eastern Hospital he obtained statistics based on the actual area of vaccination surface and with regard to foveation. He measured the area of vaccination scars in 5,808 consecutive cases. At that time the Local Government Board standard for effective vaccination was not less than one-third of a square inch of foveated scar. He followed this standard and regarded as imperfectly vaccinated all those who showed an imperfectly foveated surface no matter how large the area. His results are as follows: Effective vaccination, 1,435; deaths 36, rate 2.5; ineffective, 4.373 cases; deaths, 373, rate 8.7. These figures appear to show the great advantage of extent of vaccinated surface and of degree of scaring in lessening the fatality of smallpox. While in charge of a large smallpox hospital, the protection afforded to officers, nurses and servants by vaccination and revaccination was remarkable. A very large number were employed, but only two contracted smallpox, one being a nurse and the other a ward-maid. The nurse was a determined anti-vaccinationist and during the pressure of work she somehow escaped vaccination and suffered a mild attack of unmodified smallpox. The servant had been revaccinated three times unsuccessfully and had a very mild attack of modified smallpox. It seems likely that if it were not for the protection afforded by vaccination and revaccination against smallpox, it would be impossible to obtain nurses and other employees in our smallpox hospitals. Smallpox does occur in a very few people who show good scars of successful revaccination. None of his staff who had been revaccinated ever contracted the disease, but he has had a patient who showed the scars of successful revaccination and still contracted the disease. This has been the fact, although they showed well foveated primary and secondary and repeated vaccination scars. It must be remembered, however, that in some individuals even an attack of smallpox itself does not protect against a second attack of the disease.

Major Greenwood followed with a paper on the present aspect of smallpox and vaccination, making especial allusion to Dr. Creighton's article in the "Encyclopædia Britannica." Three indictments may be made against this author: (1) The facts reported by no means necessarily support the deductions; (2) facts seemingly against vaccination are enlarged and facts favoring vaccination are briefly dismissed; (3) facts

standing on vastly different basis are treated as of equal value. Dr. Greenwood then showed the looseness of evidence upon which Creighton founded his conclusions, especially that certain diseases, including jaundice, are caused by vaccination. Syphilis, he appeared to believe, was originated *de novo* from vaccination. The decrease in smallpox he attributed to a change in the type of the disease. But this cause, if it existed, would scarcely explain the great diminution of it among children as compared with that among the general population. Decrease in the death-rate, Creighton says, has not occurred, as at the end of the eighteenth century it was also 18 per cent. Greenwood urged that statistics on mortality in the old epidemics are entirely untrustworthy. The Conscience Clause had caused the law to be treated with contempt and practically repealed the vaccination laws. Experience gained since passing the last Vaccination Act taught the following lessons: (1) The uselessness of throwing a sop to the antivaccinationist, war to the knife against vaccination in any form being his intention. (2) The administration of vaccination laws should not be intrusted to Boards of Guardians, but to Borough Councils, better to Health Departments, and best of all to some central authority not influenced by any local prejudices. (3) Freedom of the vaccination officer from control by any local authority, but subjection of him to the local Government Board or the central vaccination authority whose inspectors should report periodically how his instructions are being carried out. (4) Vaccination as now practised affords a protective inoculation against smallpox as powerful and trustworthy as that introduced by Lady Montague, without its dangers to the patient and without the risk of spreading the disease. (5) The efficient vaccination is shown by a scar not less than one-half inch square. Revaccination in adult life is always necessary, usually at intervals of not less than ten years. The so-called one spot vaccination is greatly to be condemned. (6) The efficiently-vaccinated patient rarely contracts smallpox, no matter how much he may be exposed. (7) Vaccination under suitable antiseptic precautions and with proper lymph has hardly any dangers of introducing other diseases. (8) No general sanitary measures can possibly take the place of vaccination as a protective against smallpox. (9) Compulsory vaccination especially among infants is highly desirable. It is the duty of the medical profession to lose no opportunity of impressing this fact upon the public and the law-makers.

W. A. BOND, Medical Officer of Health at Holburn, submitted a communication upon vaccination. The general experience among the nurses and the staff of the smallpox hospital was that they could expose themselves with almost complete impunity to smallpox provided they were efficiently revaccinated. In the Metropolis Asylums Board Hospitals no cases of smallpox had occurred during the past seven years, 1894 to 1900, inclusive. For ten years there have been no cases except in persons attacked before revaccination had been successful. During the thirty-five years preceding 1871 no case of smallpox was reported among the nurses and servants of the Highgate Smallpox Hospital. Since then the only case was that of a gardener who had not been revaccinated, making a total of sixty years with this case as the sole exception to absolutely complete immunity from smallpox. Other smallpox hospitals show similar results. Death from smallpox among the vaccinated is much less than among the unvaccinated. In London from 1891 to 1900, inclusive, the death-rate was 3.1 per cent. and in the unvaccinated 18.1 per cent. If all doubtful cases without evidence of vaccination and among whom the majority had probably never been vaccinated successfully were counted in the former series the death-rate would be only 4.8. In Leicester 198 vaccinated persons of all ages were attacked. Only one death occurred, that of the hospital laundress, age forty-five years, intemperate and not revaccinated since infancy. Of 154 unvaccinated patients 19 died, a rate of 12.3 per cent. Under the age of ten years the protection afforded by perfect vaccination is still very much greater. The statistics included patients who showed good, bad and indifferent vaccination scars and some in whom vaccination had never been done. The records also give evidence of the fact that the attack-rate was smaller among the vaccinated than among the unvaccinated and the type of the disease was much less severe among the vaccinated. Marson has given a record of 14,000 cases among whom those having four or more deep vaccination scars were much better protected than those who had less. Other observers have proved that large, deep scars always give better protection. Revaccination Dr. Bond discussed in concluding in the following light: In the London post-office from 1870 to 1880, inclusive, and embracing the epidemic of 1871, only ten slight cases occurred without a death. In Sheffield and Warrington in the post-office and police force there was not one attack among the revaccinated. Since 1874, when revaccination became compulsory throughout Germany, there have been very few deaths from smallpox. In the German Army not one death has occurred from smallpox.

A visitor said that he was much astonished that so many people in England should be glad to hear a discussion on smallpox and vaccination, because in Germany smallpox does not trouble the community at all. Practically speaking it had been wiped out. By taking the statistics as they occur from year to year, it would be found that as a rule in Prussia the cases of smallpox nearly always occur on the frontier. He stated that there was hardly ever a death from smallpox in the army of Germany to-day—at least in the Prussian army. Vaccination is compulsory before the age of two years, after twelve years of age, and for a soldier at the time he enters the army.

DUNDAS GRANT, the President of the Society, stated that in his early practice in London he had seen smallpox. One of his earliest experiences he told in the following anecdote: He was called to a house where two young men were lying in bed stricken with smallpox. There were a number of abscesses all over their bodies. Two others in this family had recovered and two had died. The doctor said, "This says very little for vaccination." The man replied, "I have been a very foolish man. The fact is that I have always considered my blood and my wife's blood so pure that we would not have it mixed with any contamination whatever. The result is that I have lost two of my family and the only member who has escaped is the little baby, who has been vaccinated." Similarly he quoted from experience tending to prove the great value of vaccination and frequent revaccination.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 2, 1902.

The Vice-President, Hermann Knapp, M.D., in the Chair.

THE scientific portion of the meeting consisted in the continuation of a symposium on tuberculosis from the last meeting.

Present Need of Sanatoria.—Dr. George L. Peabody lamented the slowness of the process of recogni-

tion of the necessity for sanatoria in this country. The people are only just waking up to the crying need of special institutions for the care of tuberculous patients. European countries are far in advance in this matter. There are now 33 sanatoria in Germany. Eleven of these were erected in 1900. Thirteen of them were completed in 1901. There are fourteen new sanatoria projected, most of which will be finished during the present year. In Germany there is sanatorium accommodation for over 3,200 tuberculous patients. At the end of 1901, however, it was generally felt that they were as yet unable to care for tuberculous patients as they would like to. At the present time the Germans are engaged especially in the development of a movement for the foundation of polyclinics in which tuberculosis may be recognized at very early stages and observation stations in which suspected incipient cases may be kept under watchful supervision. With this is connected a movement, eminently philanthropic in character, for the maintenance of the families of patients during the absence of the usual financial support. This represents a completeness of sympathetic view with regard to tuberculosis that shows a spirit well worthy of imitation. Seventy-five per cent. of the patients admitted to German sanatoria are restored to usefulness within three months. As the result of the habits of sanitary living which have been insisted on for these patients on their return home, they become centers for the diffusion of sanitary knowledge of the most precious kind. It is well known that such patients are of great influence in preventing the further spread of tuberculosis in the families of relatives and friends.

Situation at Sanatoria.—There is a decided difference of opinion as to the location most suitable for sanatoria. Some prefer an elevated station; others think a lower situation quite as therapeutically effective. Some authorities insist that tuberculous patients do better in cold weather, others in warm weather. There is also a difference of opinion as to the value of exercise in the treatment of tuberculosis. Some say that the lungs need to be set at rest during the course of a tuberculous process, just as a tuberculous joint must be set at rest. All agree that even a small amount of fever is a contraindication to exercise. This has its influence with regard to the selection of a hilly site for the erection of a sanatorium. All are now agreed that open air is the most necessary element in the therapeutics of tuberculosis. The conviction of the benefit to be derived from life in the open air has been in the minds of many physicians for a long time. Many years ago Trousseau in Paris called Dr. Peabody's attention to the relative infrequency of tuberculosis among cab-drivers, although they are exposed to all the inclemencies of the weather and are especially liable to contract habits with regard to alcoholism which are now known particularly to favor the development of tuberculosis. The life of the cab-driver, almost entirely in the open air and yet without much exercise, is the ideal life for a tuberculous patient. The German Red Cross Society have established an institution to which patients may go for the day and be under the care of trained nurses and physicians, returning home at night to sleep. There is no doubt that such a system can be of great therapeutic value. Patients are educated to realize the necessity for careful habits and are taught just what is necessary for their own good. Moreover, such institutions are of distinct educational value in preventing the spread of tuberculosis, because the inmates of these institutions are taught very necessary hygienic rules.

French Sanatorium Movement.—The French have not been behind the Germans in the matter of providing sanatoria for the tuberculous. A special movement in Paris is that for tuberculous children. These children are sent to a sanatorium outside of the city and later when they are convalescent are sent to a home-colony where they have the opportunity to do farm-work. Under these circumstances patients do not relapse and, if they show any tendency to be delicate, are advised to continue farm-work as an occupation and not to go back to the city. At present there is no provision made for girls in this system, but it is expected that there soon will be. The best results have been obtained in children from three to seven years of age. Statistics show an average of 50 per cent. of cures.

America's Needs.—While all other countries have considerable organization in this matter the United States is wofully lacking. Above all, the necessity for taking care of its tuberculous poor must be impressed upon New York City. At present they are only provided, as has been well said, with a place in which to die. It can be shown to be a matter of actual economy for the city to care for them earlier. To permit these patients to associate freely with healthy citizens is to allow the serious danger of others becoming infected to persist. Much can be done for the tuberculous poor if efforts are only directed in the right way. America has a monument in this matter of which it may well be proud. At Saranac Dr. Trudeau has furnished an example worthy of imitation and has provided a source of inspiration for philanthropic medical men that should not prove abortive.

Phthisiophobia.—Dr. S. A. Knopf discussed the new disease, "too great fear of consumption," which has begun to spread and may have serious results. The Treasury Department of the United States has recently been very seriously infected by it. The Surgeon-General of the Marine Hospital Service recently decided that tuberculosis is a dangerous contagious disease. This decision would act to exclude all tuberculous patients coming to this country, even though very slightly affected, and it would apply to those coming in the first and second cabin as well as to steerage passengers. This decision is founded on an entire misunderstanding of the nature of tuberculosis. It is well known that contact *per se* with tuberculous patients is not dangerous. There is no scientific basis for the classification of tuberculosis among the dangerous diseases. A consumptive cough is not necessarily infective if the sputum is cared for. In New York Dr. Hermann M. Biggs, whose position in the matter is approved by Koch, says that workmen suffering from tuberculosis are not necessarily a source of infection to coworkers if they take proper sanitary precautions. Professors Janeway and Prudden declare that tuberculosis is a communicable, but not a contagious disease. To accept this decision of the Surgeon-General of the Marine Hospital Service is to stamp patients suffering from tuberculosis with the undeserved stigma that they are a constant source of danger to others. This will work serious harm to poor people. Already healthy men are being thrown out of employment not only because they have a persistent cough themselves, but because it has become known that they have a relative suffering from tuberculosis. Dr. Knopf has seen a poor washerwoman lose her position because of a chronic bronchial cough. Others find it difficult to procure positions when the story becomes known that they have relatives who have tuberculosis. This will entail almost untold suffering and hardship if the present impression in the matter is allowed to go uncorrected. The logical conclusion from the decision of the Treasury Department would be that tuberculosis, as a dangerous contagious disease, must be reported and strictly quarantined. This would be the logical outcome of the intemperate outcry against tuberculosis. As a matter of fact, the contiguity of tuberculous patients is not dangerous and even suscep-

tible persons are safer in a well-conducted sanatorium than elsewhere.

Vienna Experience.—Not far from Vienna there is a sanatorium for wealthy consumptives. It was proposed to found a similar institution nearby for the poor. The authorities of the original institution feared, however, for the bad name of the locality if another sanatorium were founded. The sanatorium for the poor, then, was founded in another and distant part of the suburbs of Vienna. Soon it began to be bruited about that the neighborhood of the new sanatorium was especially favorable to consumptives and for that reason had been selected by the distinguished specialist in pulmonary diseases who had the selection of the site for the sanatorium for the poor. The older resort was deserted and even the wealthier patients came to find quarters in the new neighborhood.

Vicinity of German Sanatoria.—Carefully collected statistics show that in the villages near the largest German sanatoria for consumption the death-rate from pulmonary tuberculosis has actually been reduced since the establishment of these institutions. The villagers have learned the sanitary lessons that are insisted on for the patients and so there has been less possibility of infection from tuberculous sputum. This is especially true of the villages of Görbersdorf and Falkenstein, near which famous sanatoria are situated. The recent scare in California with regard to tuberculosis served only to excite ridicule among those who realized the true conditions.

Regulation of Tuberculosis.—The recent extraordinary Treasury Department decision might, if pushed to its logical conclusion, separate families from one another and there are many families that have a tuberculous member. Such a decision is eminently un-American and utterly unscientific. There is need in this country for a national commission, such as they have in France and in Germany, to regulate tuberculosis. At the present moment even Canada is ahead in the matter of organization for the protection of the inhabitants against the spread of the disease. There is abundance of wealth and philanthropy is not lacking in the United States. What is needed is the assurance from the profession that great good can be accomplished in this way and wealth will not be slow to help in the battle against tuberculosis.

Fright Versus Education.—Meantime discrimination must be made against frightening people with regard to imaginary dangers from tuberculosis, and they must be educated to a realization of just what those dangers are. Fright will not serve any useful purpose and will only serve to throw discredit upon those who insist on dangers that are non-existent.

Dr. Knopf then presented a resolution for the consideration of the Academy. It was to the effect that the recent action of the Surgeon-General of the Marine Hospital Service and the action of the Treasury Department in accordance with it, in excluding tuberculous patients, was not based on clinical experience or scientific observation and was calculated to do harm rather than good. This resolution was laid over to be voted on, as is customary, at the next meeting of the Academy.

Crying Need for Sanatoria.—Dr. H. L. Loomis said that there is a crying need here in New York City for a sanatorium for tuberculous patients. What is needed is not a ward in a general hospital, but a building exclusively for consumptives, such as exists in Brompton Hospital in London. At the present moment the consumptive wards of Bellevue Hospital are pitiable to behold. The patients themselves are very little, if at all benefited, and they constitute a source of danger ever urgent for other patients in the hospital. When a patient suffering from tuberculosis is brought to any of the hospitals in Manhattan he is transferred as a rule within twenty-four hours to Bellevue. Here, by forced feeding and whisky, his condition is improved sufficiently to enable him to be moved. Then he is transferred to the City Hospital on Ward's Island, where a continuation of the forced feeding and alcohol gradually improves his condition, until he is able to be up and around. As a rule, the patient then asks to be allowed to go out, or, if not, he is discharged to make room for others who are in as pitiable a condition as he was himself. After a month, or two months, or three months, he comes back again and goes through the same circuit. From the history of a recent patient it was seen that he had made twelve such circuits. On one of his hospital rounds, the patient died. The exposure consequent upon the transfer from hospital to hospital and the changed mode of life after having been in a hospital hastened his end. If an institution for the better care of these patients were at hand, a not inconsiderable portion could be permanently cured and many of them could be benefited for long intervals. It would actually be a matter of economy to have such an institution. It would, moreover, prevent the spread of tuberculosis to no small extent. There is at present a building empty on Ward's Island, formerly rented to the Manhattan State Hospital for the Insane, which might be used to relieve the congestion in hospital wards and save many patients.

Dangers of Hospital Wards.—Dr. Loomis said that the present conditions in Bellevue were such that the dangers of the contraction of tuberculosis by other patients were almost inevitable. One out of three of the patients admitted to Bellevue is tuberculous. A tuberculous patient at the hospital may be put between a patient suffering from pneumonia and a patient suffering from typhoid fever with complicating bronchitis. Needless to say the risk of these other patients contracting tuberculosis is very great.

Sanatorium Advantages.—One of the principal advantages of a sanatorium is the constant medical supervision of patients. If city patients could be persuaded to come every day to their doctor they would do quite as well and perhaps better than if they were sent to a distant sanatorium. It is extremely difficult, however, to have patients understand the necessity for this and very hard also to have them follow out the rules as to diet and daily life that are laid down. Education must include the insistence upon the necessity for these points if tuberculous patients are to be improved at home.

Necessity for Careful Diagnosis.—Dr. J. E. Stubbert said that one of the important advantages of the sanatorium treatment of tuberculosis consists in the fact that very careful diagnosis is made of all cases. At the Loomis Sanatorium, for instance, all patients are examined, first, for physical signs, secondly, by the Röntgen rays, and, thirdly, as to their secretions. These observations are made by independent examiners and then notes are compared as to the conditions found. In this way the patient's exact condition is determined and the treatment most suitable for his case instituted. After all, it is not tuberculosis that must be treated, but a special individual tuberculous patient. All patients may be divided into these two classes—careful patients who faithfully follow directions given and careless patients who follow directions more or less for a few days and then on the slightest sign of improvement neglect important therapeutic measures. Careful patients recover even from somewhat extensive tuberculosis. Careless patients fail of ultimate improvement, even if they come in very incipient stages. They are unlikely, however, to come at a very early stage. It is important for the physician to study his cases and to treat each one individually. No single form of treat-

ment is always the best. A selection from the many recommendations that are made gives the most promising result. It is only by careful treatment of a great many symptoms and the faithful meeting of many indications that success comes in the treatment of tuberculosis. Undoubtedly the Government has a duty toward the tuberculous of the community. A sanatorium for the tuberculous, however, must not be run mainly with an idea to economy. It must not be conducted on the principle that the most successful management is that which cuts down expenses *per capita* as low as possible. For success in the treatment of tuberculous patients the saving of money must not be the prime object. Dr. Trudeau confesses that in his sanatorium it costs at least a dollar a day for each patient. At the Loomis Sanatorium a certain number of poor patients are taken and it costs more than a dollar a day to support them. Pay patients at Liberty are supported at an actual expense of over $15 a week.

Poverty and Tuberculosis.—Dr. Leonard Weber said that undoubtedly the prevalence of tuberculosis among the poor is due to poor feeding, poor housing and lack of ventilation. For these evils the best remedy is sanatoria supported by the Government. Sanatoria for thousands are needed. In addition, a large dispensary in which tuberculosis may be recognized in its early stages is needed. City and State aid will not be sufficient to supply the amount of room necessary for all the patients that will present themselves.

The Tuberculous Poor.—Dr. Freudenthal said that all are agreed that sanatoria are necessary. They must, however, be of a kind that can benefit not only the well-to-do, but those who are comparatively poor. The climate is not everything in the location of the sanatorium, nor in the selection of a place best for the treatment of tuberculosis. Neither Liberty nor Saranac is an ideal situation. Excellent results are obtained in the treatment of tuberculosis in the Jewish Hospital in Berlin in one of the most thickly-populated parts of the city. Undoubtedly, then, with proper facilities, much can be done without going far from New York City. Dr. Freudenthal says that many young persons ill with tuberculosis have very little to spend in their treatment. Seven dollars per week presents the maximum at times. If farms were to be obtained not far from the city on which such patients could live great good might be accomplished. Plenty of farms can be obtained cheap. Expensive sanatoria are not necessary. Tent colonies may accomplish all that is needed. This has been tried, experimentally, near Denver with great success. Dr. Freudenthal saw the benefit of tent-living for patients suffering from typhoid fever during the war between Germany and France. The patients asked to be allowed to remain in their tents even in October and November.

Need of Exercise.—Dr. Freudenthal does not believe in the rest cure for tuberculous patients. They should not only be allowed to, but should be advised to take up a farm-life. The product of their labor would help in the support of the sanatoria. If the patients were slow to recover, or if they showed a tendency to recurrence of the disease, they might be permitted to continue their farm occupations indefinitely.

Chance for Life.—Dr. Alfred Meyer said that the State owes all of its citizens a fighting chance for their lives. For tuberculous patients this can be secured only in sanatoria. There are 8,000 new cases of tuberculosis in New York City every year. When it was originally proposed that the State should take care of the insane, many said that the insane asylums would bankrupt the State. Now, however, 23,000 insane are cared for at an expense of $4,000,000, and it is just beginning to be realized how important and necessary a philanthropic duty this is for the State.

Change of Climate.—Dr. Edward G. Janeway said that no one who has seen the benefits that accrue from change of climate in many cases of incipient tuberculosis can argue that tuberculous patients do as well under city treatment. There is something in the change itself that does them good. In early life Dr. Janeway had a personal experience in this matter. For several winters he had a persistent bronchitis with quite a little cough. A number of remedies were taken without effect. A change of dwelling to another part of the State caused his persistent bronchitis to disappear, though he never took another dose of medicine for it. Sanatoria should be put in the most accessible place with the best possible location. Country sanatoria for incipient cases and hospitals for advanced cases are needed.

Encourage, Not Terrify.—Dr. Jacobi said that for many patients it is absolutely impossible to leave the city. It is not an unusual thing to find, however, that such patients, after careful examination by a physician who pronounces them tuberculous, are told that their lives absolutely depend upon their getting out of the city. They are told they must go at once to Colorado. Often between themselves and their relatives they have not the money even for their railroad fare, much less for living expenses away from home for a long time. Such advice is brutally thoughtless. Physicians must realize their responsibility in this matter and must keep before their minds the rule of Christian charity—to take care of even the least of the poor.

Sanatoria at Home.—Dr. Knopf said that patients often are compelled to continue their residence in the part of the country where their improvement has come. Sanatoria should be erected, then, as near as possible to the city, so as to make it easy for patients to take up their lives again after treatment.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, Held October 2, 1901.

The President, Alexander Lambert, M.D., in the Chair.

Dr. N. E. Brill, the retiring president, in introducing Dr. Alexander Lambert, thanked the members of the Society for the kindly courtesy with which they had assisted him in presiding over the meetings of the Society during the past year, and asked that the same courtesy be extended to his successor, who needed no formal introduction.

Dr. Alexander Lambert, in taking the chair, said that it was a source of real pleasure and one which he keenly appreciated to have been honored by the election to the presidency of the Society. It has always been the one society in which he had taken a personal interest, because he felt sure that it was an active working body and would develop from year to year. As to his intentions for the coming year, he said that he would endeavor to have presented papers, the subjects of which will be of practical interest, and which will be of such a nature as to make it worth while for the members to be present.

Acute Ascending Infection of the Kidney; Nephrectomy.—Dr. Alexander B. Johnson presented this patient, a woman of twenty-eight years, the mother of several children. She had been confined sixteen days before he had first seen her. The only trouble after the labor was that it was necessary to catheterize her. About one week previous to his seeing her she had been suddenly attacked with pain in the region of the left kidney, and this had been associated with chills

and fever. Her temperature at the time she was first seen by Dr. Johnson was 105° F. and the pulse was rapid and feeble. The urine was clear, but the microscope showed blood and pus-cells. Palpation in the left hypochondrium elicited extreme tenderness over the region of the kidney. He had operated upon her the next day. Under ether the slightly enlarged lower pole of the left kidney could be felt. An incision had been made below the free border of the ribs, extending from the outer border of the rectus to the outer border of the erector spinæ. On inspection, the kidney had appeared firm and tumefied at the lower pole. The pedicle was firmly ligated and the organ removed with scarcely any loss of blood. Her temperature at the time of the operation had been 105.2° F. and her pulse 134. Within the next three days it had gradually fallen to 99° F. and the pulse to 100, and convalescence had been established. Previous to the operation there had been a marked leucocytosis, but this had rapidly disappeared. She had left her bed on the eighteenth day, primary union having taken place except where a strand of gauze had been placed for drainage. The affected kidney was somewhat enlarged, and the diseased area was chiefly in the lower portion. The cortex was the seat of numerous minute abscesses. In the fresh state, purulent streaks could be seen following the course of the tubules down into the calices. The remainder of the kidney was in a condition of acute nephritis. The speaker said that the incision used allowed of making a small opening in the peritoneum, and with two fingers inside of the abdomen palpating the other kidney with great readiness. Another advantage was that the pedicle could be tied under the guidance of the eye, the kidney then being extirpated like any other tumor. It might be thought that the infection of the kidney had been a part of the general infection, and, while such was possible, it should be remembered that there was a history of catheterism and of an acute irritation of the bladder following this, together with a sudden appearance thereafter of chills and fever and pain in the loin. The rapid subsidence of the symptoms on the removal of the kidney was also opposed to such a view. Some years ago, on looking over the records of the Roosevelt Hospital, he had found but one case in which the kidney had been cut down upon in such an early stage of infection. That case had been one of infection in connection with an acute gonorrhea. Both kidneys had been infected and the patient had died.

Renal Calculus.—Dr. Johnson presented a youth of nineteen, whom he had first seen on August 14th of the present year. For five years he had suffered from perfectly characteristic attacks of renal colic referred to the left kidney. There had been no hematuria, but the urine had been pretty constantly purulent and small calculi had been passed *per urethram* from time to time.

The diagnosis in this case had been established by means of a radiograph. There were several large calculi found in the kidney. In this connection a number of radiographs of renal and ureteral calculi were exhibited. He had operated upon the young man through an incision similar to the one used in the other case. The kidney had been found greatly enlarged and the cortex everywhere thin. The pelvis was dilated and contained pus and a very large number of stones. The kidney had, of course, been removed and the wound had healed satisfactorily.

Operation for Ventral Hernia.—Dr. Johnson also exhibited a young man who had been operated upon by some surgeon on October 28, 1899, for an acute suppurative appendicitis. Following the operation he had suffered from a ventral hernia of some size. The operation which Dr. Johnson had done on the hernia had consisted in removing the cicatricial tissue on either side of the wound and separating the aponeurosis of the external oblique and the tendinous continuation of the internal oblique and transversalis. Internally, the anterior sheath of the rectus was separated and the sheath split throughout the length of the hernia. The rectus was freed very largely from its sheath and dragged outward. It was then attached to the under surface of the aponeurosis of the external oblique by a series of chromic catgut mattress stitches. The aponeurosis of the external oblique was then sewed up in front. This was the second patient upon whom he had done this operation, and in both instances the result had been extremely good. Neither patient had worn a belt.

Perineal Prostatectomy.—Dr. Johnson then presented three men upon whom he had done the operation of perineal prostatectomy. The first patient was sixty-three years of age and had been first seen two years ago. At that time there had been a marked cystitis and he had been suffering greatly. His prostate had been removed by making a curved cut, convex forward, in the perineum and vertical cut above the pubes, and pushing the prostate down to facilitate enucleation. The only peculiar feature of the operation was that neither the bladder nor the peritoneum was opened. The treatment after such an operation was less troublesome and the operation itself seemed to be somewhat less dangerous than the ordinary one. Of course, the operation would not be applicable to every case. The convalescence had been rapid, though the patient had suffered for a time, as these persons always do, from leakage of urine. There had been no treatment for over a year and the man was perfectly satisfied with his condition. The urine was voided with normal frequency; there was still half an ounce of residual urine. Erections were not as good as formerly. The second patient was fifty-eight years of age and had been first seen by the speaker last February. For some weeks previously he had been unable to urinate, catheterism had been difficult and painful, and was followed by bleeding. A prostate of medium size had been removed by Dr. Johnson by the operation already described. At present his urine was quite clear and there was no residual urine. He urinates three times in the day, and once at night, and his general condition has improved. The third patient, a man of fifty-seven, had been admitted to hospital on July 14, 1901, complaining of the first attack of retention of urine. On admission, sixty or more ounces of urine had been removed by catheter. The prostate was soft and considerably enlarged. There was no stricture and little or no cystitis. It was thought that an operation for the removal of the prostate would give him a good prospect of relief. This operation had proved quite difficult. As soon as the tube had been removed he had begun to pass all of his urine through the perineum, and after a number of weeks there had been an annoying incontinence. By irrigation with nitrate of silver the quantity of residual urine had steadily diminished, and it was probable that within a few weeks a cure would be complete.

A Plexiform Neuroma of the Back.—Dr. Johnson exhibited a specimen taken from a girl of ten years, who had been brought to him during the summer with a "lump" on her back. It was supposed to be a lipoma and the house surgeon was given permission to remove it. The tumor had proved to be a very rare one, a plexiform neuroma. The literature had been collated and published by Bruns. The tumor in this case measured 4½ inches in diameter and was situated beneath the skin, but not in the muscles. It was located

over the lower ribs and appeared to be the product of the degeneration of some of the posterior branches of the spinal nerves. These tumors had been described by Bruns as closely allied to elephantiasis. When exposed, the tumor had looked like a bundle of gelatinous worms. The gelatinous quality was probably due to a myxomatous change in the degenerated tissue. The nerve fibers had disappeared. The tumor in this case, as was the rule, was entirely painless. He had seen another case of the kind operated upon by Dr. Abbe That one had been on the neck. In the cases published by Bruns there were 30 in which the neck and face were involved, half of them being on the side of the forehead or on the upper eyelid. In seven of the cases the tumor was on the breast or back, and in three it had been on the extremities.

Question of Saving the Kidney.—Dr. Robert T. Morris asked how Dr. Johnson determined whether or not it was wise to save the kidney. He often found it very difficult to decide this question. Sometimes he found the kidney very much distended, a large stone blocking the pelvis, and yet the parenchyma would appear fairly healthy, though thinner than normal. On making an incision through the parenchyma and removing the calculus, the kidney seemed to be able to perform its function very well. In two such cases, however, he had found it necessary to remove the organ subsequently, one after about one year and the other after two years. The parenchyma had not contracted sufficiently to give a normal pelvis and enough urine had been retained to allow of the formation of gravel. In going over the literature of the subject he had not found discussed this question of which kidneys should be allowed to remain and which removed. He had never made use of the transverse incision used by Dr. Johnson, but had been very much struck with the apparent ease of an operation conducted through such an incision. It was evident that it gave easy access to the kidney. He would like to know whether this resulted in a strong abdominal wound; also how he sutures the oblique muscles and the transversalis in order to secure such a result. These muscles had different traction lines and, therefore, theoretically one would expect a weak abdominal wall. From palpation in this case it seemed to him that the abdominal wall was quite strong.

Dr. Johnson replied that the problem presented by the last speaker regarding what kidneys should be removed in stone cases was certainly a vexing and difficult one. Where the secreting substance of the kidney had been largely destroyed and the secretion was infectious, there could be little doubt of the wisdom of removing the kidney. However, if the greater part of the kidney structure remained normal and there were no abscesses or other evidences of a distinctly infectious process, and the stone could be easily removed and the patient's powers of resistance were good, he would be in favor of allowing the kidney to remain. If, on the other hand, there was a fairly intense degree of inflammation and the patient was feeble and had a septic temperature, he would advise removal of the kidney. There were also cases in which during the necessary manipulations for the removal of a large irregular calculus so much laceration of the kidney took place as to cause troublesome bleeding; here he would be in favor of removing the kidney. He had seen, he thought, persons die from operations done for the removal of stone from the kidney, the kidney being left behind, where recovery would probably have taken place if the kidney had been extirpated. Out of a considerable number of cases of stone and various inflammatory conditions that he had collected and many of which he had personally seen, the mortality had been notably higher than where the kidney had been left behind. In a general way, the local and general conditions must be carefully considered at the time of the operation in the individual case in order to answer this question. He had collected forty or more cases operated upon through this incision at Roosevelt Hospital, and no case had a hernia. He was in the habit of using an interrupted suture of fine chromic catgut or sometimes of ordinary catgut of medium size. The sutures were applied fairly closely and to each layer of muscles as accurately as could be done. In his opinion, one of the reasons why these cases had a strong abdominal wound was that the entire wound, with the exception of the posterior inch, had healed by primary union. Where the cut was made so high up the tendency to hernia was nothing like so great as where it was made lower down.

Dr. Morris said, regarding the case of ventral hernia, that he had operated upon a good many cases of ventral hernia by careful dissection and accurate suturing, sometimes splitting the two sheaths of the rectus and drawing it out. He had carefully avoided having these patients wear any support except for the first few days after getting out of bed. If these artificial supports were discarded early it seemed to him that the natural supports developed much more rapidly than where the supports were worn for a considerable time. He had published a series of experiments on rabbits and dogs emphasizing this point.

Radiography for Renal Calculi.—Dr. A. B. Johnson said that he had given a good deal of attention during the past year to the study of X-ray photography in connection with cases of renal calculi. He was of the opinion that the time was close at hand when negative diagnoses of renal calculus could be made in persons who are not very stout, *i.e.*, men under 160 and women under 140 pounds in weight. When, however, the abdomen was very thick the X-ray tube must be placed farther away, a longer exposure was requisite; the added density of a small soft renal calculus was little as compared with the total density of such an abdomen and back. In a thin individual having a fairly dense stone one occasionally secured remarkably brilliant pictures of even small stones. Radiographs of an exceedingly small stone were exhibited as an example of these exceptionally good results. In the case reported this evening in which there had been a very large number of stones in the kidney, one large stone showed in the radiograph while the hundreds of others present did not show, except as a diffuse shadow. The apparatus used for this purpose must be capable of giving a considerable amperage of current combined with high voltage. Special tubes are also necessary—tubes which allow the use of a large amount of current, but with very little resistance in the tubes, or, in other words, what are called low-vacuum tubes. High-vacuum tubes would show large calculi. An oxalate calculus would usually give a very dense shadow, while a very small phosphatic stone would be photographed with difficulty. It was very important that the individual should have had no meal for a number of hours before the taking of the picture; it was also desirable that the large intestine should be empty.

With slender individuals and proper apparatus a person with the requisite skill should be able by taking several pictures to make the diagnosis in most cases of renal calculus. The different pictures taken should be carefully compared in order to say whether certain shadows appear uniformly in all of the photographs. The tube should be so placed with reference to the body that the X-rays are directed through the abdomen from below upwards, for, when passed in the reverse direction the liver greatly interferes.

"Recent Studies in Immunity."—Dr. Alexander Lambert delivered this address.

BOOK REVIEWS.

SURGICAL APPLIED ANATOMY. By Sir FREDERICK TREVES, K.C.V.O., C.B., F.R.C.S., Sergeant Surgeon to H. M. The King; Surgeon in Ordinary to H. R. H. the Duke of Cornwall and York; Consulting Surgeon to the London Hospital. New Edition. Revised by the Author with Assistance of ARTHUR KEITH, M.D., F.R.C.S. Lea Brothers & Co., New York & Philadelphia.

STUDENT and practitioner alike will gladly welcome the new edition of this admirable and familiar book. It is no exaggeration to say that its text is exquisitely lucid in all details, its brisk and flowing language reminding one of a French text-book. Perhaps there is no one passage in it which more succinctly illustrates this characteristic than the following, in which the author discusses the anatomical objections that oppose themselves to the common conception of concussion of the cord. "The cord is, indeed, somewhat in the position of a caterpillar suspended by a thread in a phial of water. It would probably be difficult to disturb the internal economy of such an insect (even if it had a structure as elaborate as the cord) by other than violence that would be comparatively excessive." The description of the abdominal surface, together with the interesting characteristics of the walls and the discussion of the almost magic manner in which they guard the tender viscera from harm, is truly classic.

Indeed, this brilliant author, when given an opportunity to establish homologies between intricate anatomical conditions and the ordinary every-day affairs and objects of common observation and common life, shines with brilliancy peculiar to himself.

But while this work is one of very special merit, it is not without unpardonable defects. The illustrations are almost grotesque. They furnish examples of the most careless English art. It may in fact be said that with few exceptions there is little to justify their introduction. It is further to be regretted that in some instances the technic of some important operations is not up to date. In the discussion of stone in the bladder, for example, the operation for lateral lithotomy occupies three times the space accorded to the median and suprapubic operation. Another example, which seems to belong rather to archaic than modern technic, is that castration is cordially recommended to cause atrophy of the prostate. American surgeons have long since given up this idea.

In discussing the pancreas, the writer sets forth the relationship of this organ most clearly; but we are confronted with the startling statement that it "presents little of surgical interest." It is difficult to understand how Sir Frederick can have overlooked the brilliant work of his countryman, Mr. Mayo-Robson, on acute hemorrhagic pancreatitis.

Nevertheless, despite the numerous unfortunate illustrations and the sporadic instances of archaic technic, every reader must enjoy the book, albeit he will at the same time indulge the hope that ere long a really up-to-date edition will make its appearance.

STUDIES OF THE INTERNAL ANATOMY OF THE FACE. By M. H. CRYER, M.D., D.D.S., Professor of Oral Surgery, Department of Dentistry of the University of Pennsylvania. The S. S. White Dental Mfg. Co.

THERE is very little but high praise to be spoken of this valuable addition to our knowledge of the anatomy of the face and its fossæ. More clearly than any other book, it demonstrates, both in text and by illustration, that "typical anatomy is ideal anatomy." It is no exaggeration to say that it is delightfully free from the dogmatic; that its tone is essentially comparative, that it is, in short, thoroughly scientific in its attitude, from beginning to end, and leaves but little to be added to the intricate subjects with which it deals. The work is brilliantly illustrated by a good series of photographic reproductions, many of which are of section of the skull cut in every conceivable plane. Moreover, so much skill has been shown in the combining and arranging of the cuts that one can all but read the book without reference to the text. The chapter on anatomical variations is of peculiar interest and, together with one on impacted teeth, is of particular note to surgeons. On page 56 there is an illustration showing the three turbinate bones which surely should be in the hands of every student of anatomy. With unusual clearness it shows the comparative insignificance of the superior and middle bones.

Very naturally it is possible to pick a few flaws in such a work. Here, if at all, we find them where the author discusses the surgical significance of his findings. For example, on page 121, in speaking of the treatment of antral troubles, he endorses drainage via the nose rather than orally. This latter path is the one chosen by many surgeons and has advantages with which it does not seem to be credited by Dr. Cryer. But the book is an anatomy, not a surgery, and, as such it marks the turning of a big leaf in our knowledge of the subject.

PRACTICE OF MEDICINE. By Eminent Medical Specialists and Authorities. Edited by GEORGE ALEXANDER GIBSON, M.D., D.Sc., F.R.C.P. Edin., Physician to the Royal Infirmary, Edinburgh. In Two Volumes. J. B. Lippincott Company, Philadelphia.

THESE volumes represent a combination text-book of a type so prevalent in the United States. The editor says that the advances in every branch of medical science have been so great that a work written by several writers would most satisfactorily reflect modern English teaching and he has here given us such a volume.

From one standpoint the work is a very excellent one. It is convenient; it is conservative; the language is good, although there is great irregularity in the mode of presentation, some authors using the personal pronoun, and others the more acceptable text-book style. Each subject is treated in a sharp, practical manner and the student of medicine will gain from it a solid substratum of workable knowledge.

From the standpoint of the teacher or the progressive practitioner the work, taken as a whole, is a disappointment. In many branches the researches of recent years seem to have received no attention whatever. The old familiar groupings of disease are adhered to and newer ideas are not incorporated. The combination plan has not given a series of high class, authoritative and thoroughly modern descriptions of disease processes, but a group of comparatively superficial, quickly written and easily worded chapters.

Thus the chapters on diseases of metabolism, affections of the liver and the pancreas are extremely meager and unsatisfactory. Under diabetes no discussion is to be found of acid intoxication and its significance. The therapeutics of drugs is weak. The modern work on the chemistry of gout is not included; in fact, the newer pathological chemistry is conspicuous by its absence.

The chapters on the nervous system follow in the main the old classic of Gowers; a number of illustrations of the cranial nerve nuclei are included which are far from presenting the conditions as they have been given to neurologists by Bethe, Déjerine, Held, Van Gehuchten, Barker, and others.

If one should attempt to pass judgment on the book as a whole, it would be that, apart from certain chapters, the work is not up-to-date by some years.

Perhaps we, in America, do run after the strange gods "made in Germany" as well as in France, and give recognition to many Italian and Russian "Archives," yet a wider reading of the works of modern European workers would, we believe, have enabled the authors to make these volumes more valuable to the serious student.

A Treatise on the Acute Infectious Exanthemata. Including Variola, Rubeola, Scarlatina, Rubella, Varicella and Vaccinia, with Especial Reference to diagnosis and treatment. By William Thomas Corlett, M.D., L.R.C.P. Lond., Professor of Dermatology and Syphilology in Western Reserve University; Physician for Disease of the Skin to Lakeside Hospital; Consulting Dermatologist to Charity, St. Alexis and City Hospitals, Cleveland. F. A. Davis Company, Philadelphia.

The obstacles in the way of broad clinical study and bedside demonstration in such dangerous and highly communicable diseases as these render it hazardous and in many cases impracticable to impart sufficient instruction to undergraduates, so the combination of fever and a skin eruption is likely to fill the young practitioner with discomfiture, if not alarm. Who, then, can better help him than the dermatologist, to whom the skin manifestations are of paramount importance? These the author handles in more detail than is customary, though the other data also show a broad and thorough acquaintance with the literature, and personal familiarity with many types of these diseases. Indeed, his chapters on etiology, pathology, symptoms, complications, diagnosis and treatment will each merit careful perusal for their wealth of material and for the pleasing style in which they are written. The talks on anomalous cases and their diagnosis, particularly those of measles and varioloid, are indeed helpful. Not the least important are the opening chapter on the history of the exanthemata, the section on disinfection and the table in which are compared the chief features in the differential diagnosis of these acute eruptive diseases. The colored plates, though perhaps illustrating fairly well the lesions, have no artistic merit and convey to the mind the impression of crudeness and exaggeration. On the other hand, the photographic reproductions are excellent and typical, aptly illustrate the text, and have a real value as aids in diagnosis.

The Estivo-Autumnal Malarial Fevers. By Charles F. Craig, M.D. (Yale), Acting Assistant Surgeon U. S. Army; Pathologist and Bacteriologist to the U. S. Army General Hospital, Presidio of San Francisco, Cal. William Wood and Company, New York.

Since the return of our soldiers from the recent war, estivo-autumnal malaria has been so widely scattered throughout the country that an able exposition of this disease appeals to a much larger audience now than it did a few years ago. During the last two years so many peculiar cases with unusual trains of symptoms have proven to be estivo-autumnal malaria that an atypical form of this disease becomes very difficult to diagnose. The material for the proper study of this disease can be found only in the south, especially Cuba, and excellent opportunities have naturally been given to our army surgeons to investigate the disease. The life cycle of this form of malaria has now been entirely worked out and explanations of various unusual stages have been given in this book. The author had the good fortune to watch under the microscope the development of the crescent into a flagellated organism. At first the undeveloped crescent lay within a medium-sized corpuscle which finally melted away and from the crescent the flagellæ later broke forth. It was thus established (1) that crescents are developed within the red blood-cells, and (2) that the active flagellated parasite comes from the crescent. The proper methods for staining and examination of the blood, ignorance of which often leads to negative results, are also carefully given. The book is an interesting one which ought to be of considerable value in bringing this form of malaria more clearly before the profession and in making the diagnosis of the disease more easy and more certain.

Essentials of Obstetrics. By Charles J. Jewett, A.M., M.D., Sc.D., Professor of Obstetrics and Gynecology in the Long Island College Hospital and Obstetrician and Gynecologist to the Hospital; Charter Member of the Congrès Périodique International de Gynécologie et d' Obstetrique; Fellow of the British Gynecological Society; ex-Vice-President of the American Gynecological Society, ex-President of the New York Obstetrical Society, etc. Assisted by Harold F. Jewett, M.D. Lea Brothers & Co., New York and Philadelphia.

The more elaborate work of this author is so widely and favorably known that the student is especially fortunate in having the essential facts and principles of such a treatise placed before him in a concise and well-systematized manner. This smaller work is, however, not simply a quiz compend furnishing lists of information to be quickly learned and as quickly forgotten, but sufficiently describes the important features to make it interesting reading and valuable as a text-book for the student. A clear well-illustrated chapter is written upon the development of the embryo and the management of a normal case of labor occupies a long chapter containing many useful suggestions, but the author's methods for preventing tears of the perineum differ considerably from the generally accepted ideas. Some of the articles upon pathological conditions of pregnancy and labor are too brief to be of much value for the practising physician, but undoubtedly prove entirely sufficient to supply the needs of the student for whom the book is intended.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Clinical Hematology. By Dr. John C. DaCosta, Jr. 8vo, 474 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

A Manual of Venereal and Sexual Diseases. By Drs. Wm. A. Hackett and N. E. Aronstam. Demi 8vo, 308 pages. G. P. Engelhard & Company, Chicago.

Text-Book of Histology. By Dr. Phillipp Stöhr. P. Blakiston's Son & Co., Philadelphia.

Manual of Physical Diagnosis for the Use of Students and Physicians. By Dr. James Tyson. Fourth Edition. Demi 8vo, 298 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Transactions of the American Gynecological Society. Volume 26, for the year 1901. J. Riddle Goffe, M.D., Secretary. Philadelphia.

Transactions of the Louisiana State Medical Society. Twenty-Second Annual Session, 1901.

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ORIGINAL ARTICLES.

ON THE VALUE TO THE PHYSICIAN OF MODERN METHODS OF DIAGNOSIS.[1]

BY HENRY L. ELSNER, M.D.,

OF SYRACUSE;

PROFESSOR OF SCIENCE AND ART OF MEDICINE AND CLINICAL MEDICINE, SYRACUSE UNIVERSITY; PHYSICIAN TO ST. JOSEPH'S HOSPITAL; CONSULTING PHYSICIAN TO THE HOSPITAL FOR WOMEN AND CHILDREN.

ON THIS occasion I wish once more to express to you my thorough appreciation of the great honor which my election to the presidency of the Medical Society of the State of New York implied and to thank you heartily for this proud distinction.

The development of medical science has been so rapid that to those who have been in practice twenty or even fifteen years, who have not kept pace with the advances and the scientific movement, the language of the medicine of to-day is almost unintelligible. Indeed, medicine has been metamorphosed from an art into a science, to the everlasting credit of an unselfish profession and to the benefit of mankind.

Rational medicine requires for its successful practice a scientific foundation. It is not long since our methods of investigation were crude and faulty; instruments of precision were wanting and the many refinements of diagnosis which we now possess were either undiscovered or the few in use were to be found only in the larger universities. It gradually became evident, however, that to complete the education of the physician it was necessary to establish the laboratory (that true workshop of the physician) where he might study the conditions which exist in health; learn to appreciate the changes wrought by disease; gather lessons from the thorough study of physiological chemistry, and record many facts concerning the modification of perverted functions by the application of remedies. Without these object lessons many of the astounding advances of modern medicine could not have been made. By the aid of these, medicine has made greater progress during the past three decades than had previously been made in as many centuries.

The scientist must of necessity be a revolutionist. All things he must prove for himself. Richet has truly said, "By experiment and by science, medicine is compelled to march forward." This is as true to-day as it was in the time of Harvey and should prompt us to encourage in all fields of medicine, wherever permissible, original, painstaking experiment and the conscientious application of positive conclusions to the recognition and treatment of disease.

Unalterable and earnest in the belief that modern methods of diagnosis have proven themselves of the greatest advantage to the physician in the study of disease, and with a conviction deeply grounded, much against my will, that only a minority of the medical profession has adopted these refinements by the use of which medicine in its science becomes more and more exact, I have concluded on this occasion to address you "On the Value to the Physician of Modern Methods of Diagnosis."

The profession, as organized in our Society, has always represented a progressive element in medicine; has demonstrated its willingness to enlarge and enrich its field of usefulness and influence; has striven to disseminate knowledge far beyond the limits of our own State; and it is because of this encouraging past and the promising present which cements the past and the future that I bring this subject to your notice in order that our influence may be exerted in behalf of methods in diagnosis which rest on a scientific foundation and which prove, when impartially reviewed, to be of inestimable value to the suffering.

We are not to rest content with the uncertain methods of our forefathers, which seemed to them, as they seem to many to-day, to unearth the entire truth, but with Lessing we must proclaim, "Not the bare truth which everybody possesses, or thinks he possesses, but the earnest endeavor which he has made to understand the whole truth—to get at the foundation of it—makes the worth of a man. For it is not through its possession, but rather through the search for the truth that his powers are enlarged, which alone make for his growth toward perfection. Possession makes him quiet, indolent, proud." Ours is a profession which can ill afford to be satisfied with possession which makes it innocuous and proud. Ours is the task of blasting in the quarries of the unknown, where are hidden innumerable precious truths awaiting development. Thus may our art "gain the reach and certitude of sway over disease which we all yearn for it to possess."

Sir Michael Foster has recently said, "The phenomena of disease, being phenomena of living beings, present themselves in most, if not in all cases, as problems, as mixed problems of physics, chemistry, and biology, to be grappled with by the doctor as they are grappled with by the physicist, the chemist, and the biologist." To this quotation, I add the words of our own philosopher and pathologist, Welsh, recently given to the profession at the Virchow dinner: "General pathology must call to its service not only morbid anatomy, but also experimental and clinical medicine;

[1] President's address delivered at the ninety-sixth meeting of the Medical Society of the State of New York, Albany, Jan. 28-30, 1902.

nor is practical medicine to be founded upon pathological anatomy and general pathology alone, important as they are to the physician in many ways. Clinical medicine, as well as every other department of medicine, must be investigated by itself, deriving, as should every science, all the aid it can from allied sciences."

Our appreciation of clinical diagnosis by means of microscopic and chemical methods is well demonstrated by the hearty welcome with which the original work of Von Jaksch and later the volume of Simon's, both on clinical diagnosis based on newer methods, were received by the progressive internists. We were eager for more exact knowledge—for science to aid us in our art. The statement by Simon, that "Diagnosis is now the password in medical science," needs to be realized by many who continue satisfied with the uncertain methods of the past. The value of the application of the knowledge of physiological chemistry to the recognition of disease is splendidly illustrated by the certainty with which many diseases of the stomach and intestines are thereby recognized. Here I may be permitted to quote from a former address: "With the discovery of free hydrochloric acid in the gastric mucus by Prout in 1824, and the demonstration of pepsin by Schwann in 1836, the first data for an ultimate and more thorough understanding of the physiological and chemical functions of the stomach were given. These discoveries, with those of Reaumur and Spallanzani, formed the foundation upon which ultimate gastric pathology was to rest, and upon which a structure has been erected to which modern medicine points with just pride.

" 'The way to pathology is through physiology,' says Ewald, and the more we deal with this subject, the firmer is the truth of that statement impressed upon our minds. It is not the study of the peptonizing function alone which claims our attention, but it is the proper understanding of the entire work which is performed in this human laboratory, including a large part of the alimentary canal, and a thorough appreciation of the relations which each function bears to the others, that make a rational anatomical diagnosis and indications for treatment possible and in many cases positive."

When Kussmaul in 1869 first used the stomach-pump and tube in the treatment of disease, Liebermeister correctly prophesied that this maneuver would probably mark an epoch in gastric pathology and therapy. When Leube in 1871 first recommended the stomach-tube for purposes of diagnoses, he cleared the way for the ready diagnosis of stomach disease. Without the methods evolved from Leubeg's original innovation, gastric diagnosis would soon fall and the treatment of stomach disease would once more become as unscientific as of yore.

The diagnostic value of the absence or diminution of free HCl in the stomach secretion, associated more particularly with piloric cancer and ultimate dilatation, was first systematically investigated by R. von den Velden at Kussmaul's clinic in Strassburg. Golding Bird called attention to this fact in 1842 and it seems strange that this information was ignored by the profession for diagnostic purposes during so many years.

I found in my investigations of gastric cancer, reported in 1893, in one hundred and twenty tests, free HCl absent in 92.7 per cent. and present (as a rule feebly) in 7.3 per cent.; from a larger number of cases since studied, material change in these figures is not justified.

The diagnosis of cancer of the stomach from the absence or presence of free HCl *alone* ought never to be made, but, associated with other symptoms leaning toward malignancy, we may assume with considerable certainty that the demonstration of the presence of HCl argues against the existence of cancer. The cases, according to Ewald, "in which there is a positive reaction to the carefully-applied tests are so rare that they have very little bearing on the question." Since the introduction of these chemical tests for the recognition of diseases of the stomach, we have learned much which is of value relative to blood-changes in these and other diseases. Thus, in some cases of latent or progressive cancer of the stomach, atrophy of the gastric follicles and pernicious anemia or other diseases associated with cachexia, stomach symptoms, and blood-changes, the combined results of gastric tests with the blood-examinations, *repeatedly* made, give facts which we must possess to clear the horizon and justify positive diagnosis.

Henry's observation showing that the reduction of red blood-corpuscles in cancer of the stomach does not keep pace with the cachexia, while in pernicious anemia the cachexia does not keep pace with the reduction of red blood-corpuscles, has been corroborated many times and is of great diagnostic value.

For the surgeon the knowledge gained by our new methods in stomach disease is strongly confirmatory. With a growing experience we are justified in entertaining for the future a well-founded hope of recognizing malignant disease of the stomach early, when as the surgeon's helpmates we shall save or prolong many lives in comparative comfort. By these methods of diagnosis the dietetics and therapeutics of gastro-intestinal diseases have been placed upon a more solid and scientific basis. The satisfaction experienced by the physician in outlining a diet which he knows will positively find a suitable reception and ultimate assimilation must be sufficient recompense for the time occupied in studying the individual case.

Time will not permit the rehearsal of profitable experiences in this field. The recognition by our positive methods of qualitative and quantitative changes in the secretory function of the stomach has ended the suffering of many chronic invalids. The recognition of hyperacidity and hypersecretion has relieved many unfortunate sufferers from uncontrollable pain, waning strength and wasting muscle, with rebellious

stomach symptoms. Scientific diagnosis in these cases, followed by rational treatment, yields brilliant results. No physician can do justice to himself or to his charge who is unable, when the case demands it, to apply the simple methods which without great labor or loss of time make clear to him the working ability of the stomach in its secretory, motor and absorptive parts.

No one who has worked in the broad field of medicine, unless finally biased by narrow and special practice, contends that in all diseases of the stomach we need the test-meal and the knowledge gained by its chemical examination for the recognition of disease. We shall always meet a large number of cases, however, with uncertain symptoms, with strong indications of disturbed gastric function, cases with features of malignancy, though without positive physical signs; cases in which the question of the benign or the malignant nature of the underlying process needs prompt recognition, in which we shall be able to add a strong link by the correct interpretation of data gained by the methods founded upon our knowledge of physiological chemistry.

In this connection I must call your attention to the great value of inflation of the stomach with air or carbonic acid gas. In office practice we often gain knowledge of the relative size and position of the stomach; of its relation to the neighboring organs; of its walls, as well as the resistance of these, by the administration of a Seidlitz powder, each part separately, to allow the escape of gas in the stomach to distend it. More satisfactory, in cases in which this maneuver fails, is the inflation with air through the stomach-tube. The failure to inflate the stomach by these means, with associated symptoms of malignancy, and the absence of tumor and free HCl would lead to a suspicion of infiltrating disease of the stomach-wall. In some cases adhesions to the surrounding organs have thus been recognized, while in a case of ulcerating cancer it was found that the adherent transverse colon was readily distended with the tube in the stomach, because of communication which existed between these viscera as the result of ulcerative changes.

The distention of the large intestine with air is frequently of great value in the localization of abdominal diseases; particularly useful in the recognition of renal growths in which the distended gut is found anterior to the growth. These methods are too rarely used and will not be discarded when fairly tested. The precipitation by centrifugal force of cellular elements from the stomach-contents, with microscopic and bacteriologic examinations, will often prove of great therapeutic and diagnostic value.

In connection with the diagnosis of syphilitic diseases, a fact which has been too often overlooked and which is rarely mentioned is the tolerance for the iodides in specific cases of ulcer and gastritis and the ready relief experienced. Under ordinary circumstances the symptoms of these patients are almost immediately aggravated.

The application of centrifugal force to clinical medicine is of recent date. Steinbeck of Stockholm, a medical student, first described the use of the centrifuge for the precipitation of sediments from urine, sputum, and other pathological fluids. Litten at the Congress of Internal Medicine in 1891 made a strong argument in favor of its use; Von Jaksch described the positive advantage of the combination of the centrifuge and Biedert's method in cases in which he was unable to find bacilli after patient search. Freeborn of New York in 1891 demonstrated a home-made machine capable of nine hundred and fifty revolutions per minute. Gerster and Sondern followed with contributions on this subject and in 1894 Elsner and Hawley, after a considerable experience with the instrument, dilated on the clinical value of the centrifuge.

Experience with the centrifuge has proved it to be of inestimable value. It is one of the few aids to diagnosis which have been generally adopted and to-day there is practically no laboratory or hospital in which it is not found. The time gained by centrifugalizing urine is of great advantage, when an unaltered urine is desired (fermentation not having taken place); the early precipitate shows epithelial casts and other structures before changes in shape, size and contour occur, and these without bacterial contamination. By the use of the centrifuge, insoluble and suspended elements are precipitated.

Blood may be precipitated when present in such small proportion that no other method would show it. It is invaluable to the insurance examiner in aiding to discover the underlying condition in cases of so-called transitory cyclic or of puzzling permanent albuminuria. It is our most reliable aid in detecting early primary genito-urinary tuberculosis. It precipitates small quantities of albumin with picric acid and makes possible the immediate application of Esbach's test, thus saving twenty-four hours.

The bacteriological examination of serous exudates and other pathological fluids is expedited by its use, as is also the examination of sputum for tubercle bacilli when they are present in small numbers. The writer found that in twenty-one per cent. of urine analyses, the centrifuge yielded results which led to greater accuracy in diagnosis than could have been otherwise obtained.

In doubtful cases of renal calculosis, the methods of Kelly, including the distention of the kidney and its pelvis with water, after his improved maneuver, gives information which cannot be obtained without exploratory operation. The added evidence furnished by the X-ray examination and the skiagraph will often furnish proof which justifies accurate and scientific diagnoses, though the clinical history may be meager and unsatisfactory. These and similar methods, with painstaking bedside study, may arouse suspicions which must finally lead to positive conclusions.

The birth of a new science, hematology, founded upon accurately-interpreted data, has added great pleasure and material profit to the

study of many conditions, formerly puzzling in their differentiation and unsatisfactory in their treatment. No diagnostic methods in medicine give more conclusive evidence or offer more uncontrovertible pictures than are revealed by those which we to-day include in our examinations of the blood. When I hold that these methods have not only been profitable, but have given the diagnostician genuine pleasure, I speak without exaggeration.

It is not the object of the evenly-balanced physician to replace the knowledge gained at the bedside by laboratory findings, or to limit diagnosis by considering only facts made positive by microscopical examination and staining of the blood, but to *add* the exact knowledge which was unattainable before the advent of hematology. Let him who has never relied upon blood-examination for assistance in diagnosis work but a short time in this field, and he will unfold a chapter to which he will revert for information and upon which he will learn to place great reliance as he becomes more and more conversant and expert in technic. Blood-examination means much more than would appear on the surface to those who are unacquainted with hematological methods. From a narrow conception of the true significance of the anemias, we have broadened the field until we hold without fear of successful contradiction that the positive diagnosis of the simplest form cannot be made without the aid of data obtainable by blood-examination.

Clinically the picture of a grave anemia, nonmalignant, is often identical with that of pernicious anemia. Pernicious anemia may in some of its stages simulate exactly in subjective symptoms and in many of its objective features a true leucemia, while Hodgkin's disease may present symptoms not unlike malignant disease, lymphatic or mixed leucemia. The missing link in the differential diagnosis can be furnished only by laboratory examination of the blood.

Without the quantitative test for hemoglobin, we would often fail in our differentiation of the anemias, while our treatment would continue to be irrational.

Differential blood-counts and staining methods give data which justify the positive differentiation of the various forms of anemia known as leucemia. Thus, we have learned to recognize the pathognomonic lymphocyte of lymphatic leucemia and the myelocyte of the myelogenous or splenomyelogenous variety of the disease.

Who shall be able to compute for the profession the gain which has accrued from our ability to diagnose malaria from the presence in the blood of its protozoon? Our ready method of demonstrating the organism of malaria has made positive the nature of many most difficult and troublesome conditions. Add to this the readiness with which, after the method of Sittman, we recognize bacterial contamination of the blood and you have included methods by which medicine has become more exact and satisfactory. In many epidemics we meet continued fevers without characteristic symptoms of typhoid, which can be diagnosticated only by the systematic use of the Widal agglutination test. The percentage of failures is relatively small, while the positive information, so much needed in doubtful cases, is often, though not always, obtained. Absence of leucocytosis or a diminution below the normal of leucocytes with fever, with the absence of other objective features, has often justified the diagnosis of typhoid before a positive Widal test was obtainable. The presence of leucocytosis with chills and fever or with continued fever, with or without local symptoms, has often led to conclusions which have been life-saving in their effect. Sudden and persistent leucocytosis in typhoid fever and in other conditions not usually associated with polymorphonuclear leucocytic increase, points to complications the nature of which may be surmised with great certainty when the result of the blood-examination is considered with the associated subjective and objective symptoms.

The revelations of a leucocyte-count in a case recently seen in which irregular fever and chills followed dysentery, without more than a slight tenderness in the right hypochondrium with slightly-enlarged liver, furnished the information which made pus accumulation probable and justified exploration. An abscess of the liver was found.

Puzzling cases in which tuberculous diseases require differentiation are often cleared up by a count of leucocytes. This method of differentiation is one which we will often use and, unless we have mixed infection with tuberculosis, the absence of leucocytosis may be considered an important factor in diagnosis. Thus, in tuberculous peritonitis the leucocyte-count is not materially increased. Leucocytosis with brain symptoms argues in favor of meningitis, non-tuberculous.

Much has been written recently on the condition of the blood in surgical disease, particularly in appendicitis. In connection with this disease we must not fail to give an existing leucocytosis the prominence which it deserves. To depend upon the results of the blood-examination, without giving to other symptoms in a suspected case of appendicitis their proper import, would lead to unpardonable error.

The diagnosis of *trichina spiralis* may be and has been corroborated in doubtful cases by the presence of eosinophilia. Eosinophilic increase may become an aid in the recognition of scarlet fever when other data are wanting or meager.

The detection of indican with or without leucocytosis gives information of value in occasional doubtful intestinal and abdominal diseases.

It has been said that the time occupied in making blood-examinations is out of all proportion to the knowledge acquired—an unjust and untrue charge. To gain exact information is our aim at any expense of time, but fortunately a thorough blood-examination can be completed in less than one and one-half hours, while in the majority of cases, with our newer methods and better technic, one-half that time will suffice to give the informa-

tion needed. The successful and busy physician ought to be willing to relegate this work to those less occupied; he will always be able to find trained assistants to complete this work for him. The simple and rapid methods of staining malarial and other blood-films without fixation, after the method of Romanowsky, and with the Jenner panoptic stain, reduce materially the time necessary for gaining satisfactory results.

The bacteriological diagnosis of certain diseases has become a matter of routine with the scientific worker. To the bacteriologist we look for the solution of many important problems in the prevention and recognition of disease. The number of lives annually saved by the application of bacteriological methods to the diagnosis of disease cannot be estimated.

When we consider the advantage of the bacteriological examination of the blood, including culture experiments, we are led into a broad field in which the practising physician cannot do more than accept the knowledge gained from the well-equipped laboratory over which special workers must always preside.

We have not received the encouragement which we deserve from the State in our efforts to prevent and diagnose disease. The policy of the State in this direction has been niggardly and short-sighted. Every section of the State should have a well-equipped laboratory in which thorough bacteriological work may be done to give the aid to the profession which for public safety is often promptly needed, and by which many difficult questions can be definitely settled. Thus, I have found during the past year counties in which there were no facilities for making cultures in cases of diphtheria, or for the application of bacteriological methods to the recognition or treatment of disease. Such faulty policy can only end in disaster and useless sacrifice of precious lives. I fear that many in our profession, as well as our legislators, have failed to appreciate what a leading part microscopy and bacteriology play, for an improved diagnosis is but a small portion of the gain to be derived from a scientific study of the causes of disease. "A new direction has been given to treatment."

The enormous advantages of serum diagnosis were well illustrated during the Spanish war, when the fevers prevalent among the American soldiers in Cuba and Porto Rico were claiming so many victims, and the differential diagnosis of typhoid malaria and the dysenteries was of such transcendent importance. The blood of ninety-five per cent. of the typhoids showed a positive serum reaction, the malarias were easily recognized by the characteristic protozoa, while the dysenteries gave no positive blood-picture.

Cases of typhoid associated with jaundice are mentioned by Cabot in which the diagnosis of yellow fever was eliminated by the immediate typhoid serum reaction. Cabot says, and it is true of serum diagnosis, "The whole process can easily and safely be carried out by the physician in his office without any laboratory facilities and without half the skill or labor necessary to examine the urinary sediments."

Much has been written during the last few years on the advantage of lumbar puncture in doubtful cases of brain disease, particularly in tuberculous meningitis. Microscopical examination of the fluid has often been negative. Langer sought to aid diagnosis by incubating the fluid withdrawn, but the patients died, as a rule, before conclusions were reached.

For animal experimentation large quantities of fluid are required, even for intraperitoneal injection, and positive results are too long postponed. It is doubtful whether in case of failure to demonstrate microscopically the presence of tubercle bacilli in the fluid withdrawn, we shall succeed by experiment of any kind in establishing a diagnosis with sufficient rapidity to be of any value to the physician.

It has been found that sugar is usually present in the meningeal fluid in cases of brain tumor, while in tuberculous meningitis it is absent as a rule. It will be preferable to depend on the ophthalmoscope in these cases without the puncture. Lumbar puncture in the hands of the inexperienced or uncleanly is not without its dangers. It is not at all likely that it will ever be adopted by the general profession for diagnostic purposes; indeed, in the majority of cases we are not dependent upon the information which it has been supposed by some to convey.

In occasional cases the diagnosis of malignant disease may be strengthened by the examination of serous effusions and tissue removed after some one of the improved methods.

Cancer-cells are no longer considered characteristic. Dock has shown that similar cells are found in cancerous, tuberculous and other effusions. The presence of many cells in serous effusions showing mitosis, either typical or atypical in type, is strongly suggestive of malignant growth. Centrifugalized specimens may, however, be examined for evidences of mitosis with negative result. The specific gravity of cancerous effusion is low, that of tuberculous higher, varying between 1020 and 1028. The presence of a large amount of blood has in several cases of cancerous effusions raised the specific gravity to 1020 or even 1022.

Simon says, "Clinically, it is frequently difficult to distinguish between transudates and exudates, and large ovarian, pancreatic, and hydatid cysts, as well as cystic kidneys, may at times be mistaken for ascites. In such cases a careful chemical and microscopical examination of the fluid in question may be of decided value. Very frequently, moreover, it is possible only in this manner to determine the true nature of the disease, and the importance of freely using the trocar and the aspirating-needle in diagnosis cannot be too frequently advocated."

The use of the Roentgen rays in medicine seems almost uncanny. It is doubtful whether with our present technic we gain many pictures which justify positive conclusions in the study

of internal diseases. The greater reliance must still be placed on associated physical signs and subjective symptoms. Certain it is that a correct interpretation of the skiagraph requires great experience and the production of the shadow must always be relegated to those whose practices are limited and who have infinite time and patience to give to this work. I know of no field in which greater perseverance and attention to detail are needed.

We have received valuable aid from X-ray examinations in diseases of the lungs and heart, especially when an accurate knowledge as to the size and movement of those organs was needed. The diagnosis of intrathoracic growths and aneurisms has been strengthened by the fluoroscope and skiagraph, without ignoring associated clinical manifestations. This method of inspection has been of greater advantage to the surgeon than to the physician, but to deny its value in medicine would be absurd and unjust. Changes in the bone, about the joints, and gouty deposits have been satisfactorily demonstrated. Dense foreign bodies in internal organs, such as calculi, are very often demonstrated by the Roentgen rays. Porous calculi have escaped detection in several cases examined by this method. If the negative picture had been depended upon, one case recently seen, in which there were over 500 calculi in the gall-bladder, would have remained unoperated upon.

Skiagraphy may be said to be in its infancy, but we are encouraged by the labors of Williams, Leonard, Stubbert and others, to hope for great assistance in the future from the use of the Roentgen rays in medicine. The recent introduction of an apparatus for giving stereoscopic vision by the X-ray is believed by some to add materially to the practical value in medicine and surgery of this method of examination. The usual silhouette effect is replaced by a picture which stands out distinctly, showing the space relations of the object viewed.

We are not to be discouraged by the fact that radiographs which seem unsatisfactory to the majority of ordinary observers are readily interpreted by the expert, for, in cases in which we must place considerable dependence upon these pictures as giving evidence of pathological change, we shall give the opinion of the X-ray expert the importance which it deserves, remembering always that we have received but a link and to strengthen the chain requires the thorough application of other confirmatory methods.

The scientific diagnosis of many diseases of the nervous system has been materially aided by our knowledge of the electrical reactions of the different tissues in health and disease. To those only who have a thorough conception of the newer anatomy and pathology of the nervous system will electricity give any assistance in diagnosis. Here, as in the localization of central and peripheral nervous lesions, physiological knowledge remains the ground-work upon which diagnosis must be builded

Bennett has, after patient clinical observation in this field of diagnosis, demonstrated the truth of the statement that "Like all of our methods of physical diagnosis, electricity must not be depended upon as the sole means by which we are to arrive at a just conclusion in investigating the nature of disease. It is only one of the aids we employ, but which in conjunction with other facts and observations is a most powerful auxiliary." There are a sufficient number of instances in which electricity offers data for diagnosis which cannot be obtained from any other source and for this reason the general practitioner, as well as the specialist, must acquaint himself with the method of its application and must possess the underlying knowledge which makes rational conclusion possible. Though electricity may not be absolutely necessary for the diagnosis of the various paralyses it remains the means of giving it "a facility and precision which has become indispensable to the neurologist." Electric reactions, associated with a thorough study of the deep and superficial reflexes, lead to the interpretation of phenomena upon which depend localization and diagnosis in many puzzling conditions.

An instrument of precision too little employed by the general practitioners is the ophthalmoscope, for the introduction of which the memory of Von Helmholz will always be revered. If the information obtained from its use were limited to the eye, we would not consider its value on this occasion; it gives information regarding the existence and nature of pathological conditions elsewhere than in the eye which is often obtainable in no other way.

Gowers, in his classic work on Medical Ophthalmoscopy, says, "This information depends upon the circumstances that we have under observation: (1) The termination of an artery and the commencement of a vein, with blood circulating in each; (2) the termination of a nerve, which, from its close proximity to the brain and from other circumstances, undergoes significant changes in various diseases of the brain and in affections of other parts of the nervous system; (3) a nervous structure, the retina, and a vascular structure, the choroid, which also suffer in a peculiar way in many general diseases."

We do not contend that the general practitioner must of necessity become an expert in the use of the ophthalmoscope, but we believe that he must depend upon its revelations, if he would early recognize certain diseases of the brain, arterial degeneration and renal complications. Time does not allow on this occasion of an extensive argument in favor of the more frequent use of the ophthalmoscope by the physician; many cases might be taken from the records of those who have learned to use this instrument in general medical practice, which justify the great satisfaction with which its use is continued. We have only to refer to the significance of optic neuritis with brain symptoms, however vague, the presence of choroidal tuberculosis in advance of other positive symptoms, the presence of albuminuric

retinitis in cases of non-albuminuric nephritis, and the presence of retinitis and changed vessels in comparatively young subjects with transitory albuminuria and tube-casts, to show the value of the ophthalmoscope to the every-day doctor.

Those who for any reason are unable to refer these cases to special workers in this field should educate themselves by post-graduate study in the use of the ophthalmoscope for the recognition of the grosser pathologic changes in the eye.

In the preparation of this address the fact is appreciated that reference has been made only to a few of the newer methods upon which the profession is to-day leaning as aids in diagnosis. Limited time does not permit the consideration of many of the methods which are of undoubted value as adjuvants in the recognition of disease. That which I wish to emphasize is the importance of working systematically and scientifically, however busy we may be in our practices.

It is no secret that the charge has been made that too many patients in this country are often ignorantly and incompetently treated, and our medical schools and system of medical education are held responsible for this state of affairs. We must admit that we too often fail to stimulate the "scientific sense"; men are not educated to work systematically. Raise as high as you can the requirements for admission into the profession, gain the best timber possible, which will always include a majority receptive and earnest, and these serious charges will be less frequently made. We shall never be able to impress all with the enormous responsibility under which many almost stagger in medicine.

Many agencies have influenced American medicine. Whether these originated from communion with Louis, Laennec, Trousseau or Charcot in France; whether they were led by the Berlin school, the immortal Schoenlein, Traube, or Virchow, and their followers; were founded upon the methods of the Vienna school from which radiated the benign influence of Bamberger, Duschek, Skoda and a score of others, or were the products of our own enlightened masters of medicine—and we have had many—each had a scientific fundament and each vied with the other in unearthing new truths to be applied to the recognition of disease and its treatment.

The clinical medicine of the past may with reason be compared with a rude and hardy plant, now grown in spite of neglect to a colossal tree with innumerable branches, richly laden with fruit, its roots reaching far into the fertile soil for nutriment. This soil must be nurtured and sustained, else the tree will fade and die. The new must become an integral part of our being; the new of to-day is often enriched by the new of yesterday. True it is that "stagnation is something more than death." The physician of to-day has countless advantages over his forebears; his training makes him more enlightened, he has been forced to equip himself for life's work. The advantages offered for the thorough and scientific study of disease were never before equaled in this or any other country.

A generous public, by the free giving of material aid, encourages the solution of scientific problems related to disease and its prevention by scientific methods. In return it has a right to demand the product of our best, our most conscientious efforts. Are we not also prompted by selfish motives to work scientifically? Our only safeguard against quackery is "continued recurrence to the scientific basis on which the practice of medicine rests." We must gain exact knowledge in order to derive satisfaction from our practice. Even with increasing knowledge the layman's demands may in many cases be far beyond our ability to supply.

We can ill afford to encourage iconoclasts in medicine. Fortunate for us that we have no Paracelsus—a badly-balanced genius—a dangerous revolutionist at work to reject all that has been taught because of a pronounced taste for a single science. There will always be extremists against whom the evenly-balanced must array themselves. The application of modern methods in the diagnosis of disease must always remain supplementary to bedside study, but no one who has taken advantage of laboratory methods will deny that by laboratory study much may be learned of the greatest scientific and practical importance without which we would be poor indeed. The practical diagnostician will not be narrowed by the association of laboratory methods with clinical data; he will not become theoretical, but more practical; he will become a more acute and cautious observer because of this training; he will "acquire knowledge at first hand" and make fewer hurried diagnoses; he will be prompted to do more original work.

There are those who, in spite of the fact that we are encouraged in all educational matters to develop the observant sense, continue to decry all laboratory and scientific methods. The scientist is charged with being a dreamer and impractical. "There are some, indeed, who would tell you that the scientific man is ill fated for anything but science; that he cannot be punctual, business-like, a plain speaker, pious, or I know not what else." . . . "It would be difficult to find greater nonsense in any of the books or journals on a modern bookstall." . . . "There is nothing that a man may not be at the same time that he is scientific." (Paget.)

Failures in practice are by no means limited to the scientific. This fact requires no extended argument. Did Schoenlin's practical work in Berlin suffer because of his scientific attainments or because he became the pioneer in Germany in the introduction of physiological methods, the microscope and chemical analysis, in the study of his clinical material?

Haller had made the attempt one hundred years before, but the scientific fundament supplied by pathological anatomy was wanting. Hippocrates

auscultated, and Anenbrugger one hundred years before Laennec attempted to introduce percussion as a diagnostic agent. These attempts bore no fruit; pathological anatomy was needed to make clear the meaning of physical signs. It is by no means to be considered an accident that, among the greatest advances in medicine made during the century just closed, both pathological anatomy and auscultation were introduced into the clinic by the same clear mind, Laennec. He is one of the greatest physicians in history. Allbutt has said, "He deserves to stand by the side of Hippocrates, Galen, Harvey and Suydenham. His work was a revelation of the morbid anatomy of the internal organs during the life of the patient."

The physician who is truly successful in practice must depend in a great degree upon the good opinion of his fellow-practitioners. Laymen have not the positive means of gauging our ability which those possess who are fitted to judge.

Nothing commends itself to the professional mind as does the thorough scientific investigation of individual cases. Certainly there are among those who have no medical education some who judge reasonably of the physician's worth; but the number of these is few. Of the majority we may say they are the most ignorant who are most positive and loudest in their praise or denunciation, and these are often the most influential.

Herbert Spencer has well said, "Had we time to master all subjects, we need not be particular."

> "Could a man be secure
> That his days would endure
> As of old, for a thousand long years,
> What things might he know!
> What deeds might he do!
> And all without hurry or care."

Bearing in mind our limited time for acquisition and action, the question which is of such transcendent moment is whether the methods recently introduced are of sufficient benefit in the study of disease to claim our attention and time. We must determine, in other words, "the relative values of knowledge." If we consider the relative worth of these methods to the clinician from an unbiased standpoint, we must conclude in favor of the adequateness of the advantages. There is certainly a proportion between the required labor and the probable benefit. The young man needs the knowledge and training which the thorough study of disease develops, while those who have grown old in the treadmill must take advantage of modern methods and ideas to retain their standing in the profession.

Sir James Paget, in his Memoirs recently published, writing on the "Ways into Practice" and the "Various Ways out of Practice," speaks candidly of the conditions which affect success and invite retrogression. Between the lines one can read the thoughts of this clear-minded gentleman-physician and the appreciation by him of the importance to the honest worker of receiving, after a sufficient period of probation, the methods which were included in the armamentarium of his juniors and pupils.

To those who are practising at a distance from centers where men are devoting themselves to the accurate methods in medicine, a word of warning may not be misplaced at this time. Your influence will not endure if you persist in ignoring methods which have been tried and found useful. You will finally hold only a remnant of your present clientèle. In spite of the fact that the public has never been more credulous or more ready to encourage quackery, the services demanded from the physician were never before expected to be of so high an order. His search must always be after the ends of science. "The real and legitimate goal of all sciences is the endowment of human life with new inventions and riches." The individual has a right to demand of his physician accurate recording of all facts relating to his condition with a painstaking investigation of every detail which the case offers, by *every method needed for accurate observation and ultimate diagnosis.* Believing that modern methods of diagnosis lead to the trustworthy interpretation of symptoms, with a firm belief in the superior ability of those who have adopted these methods, the lay world is fast removing its former prejudices aganst hospitals in which medicine and surgery are practised rationally. The consulting-rooms of those who are known to employ most thorough methods are filled with all classes of clients. There is a feeling abroad which calls for thoroughness from those charged with the recognition and treatment of disease.

The period has not yet been reached when we can truthfully deny that our art is in advance of scientific direction and explanation. Now as always we need common sense, as well as knowledge, with ready decision and resourcefulness. These no college or teacher can supply. We must never allow our critical faculties to exceed the practical. It has been truly said that "practice without scientific reëdification soon degenerates into stereotyped and sterile routine." No amount of extra labor bestowed on the study of disease will prove irksome to him who possesses the true scientific spirit; on the other hand, the consciousness of a duty thoroughly and consistently performed will prove an ample reward.

Out of the clinical laboratory "the new medicine is to come—the medicine which, penetrating into the intimate processes of Nature, learns to turn Nature to her own correction—the clinical laboratory is to be the scene of the study of the origins of disease."

"A life full of work and labor is no burden, but a boon, an enjoyment." This served as the text of Virchow's original thesis. His life has been sweetened by the conscientious and scientific application of his great powers, and it is this spirit which will continue to inspire the physician.

The moral force of scientific methods in medicine is the greatest factor in modern medical practice.

NOTE ON THE GLYCOSURIA FOLLOWING EXPERIMENTAL INJECTIONS OF ADRENALIN.*

BY C. A. HERTER, M.D.,
PROFESSOR OF PATHOLOGICAL CHEMISTRY, UNIVERSITY AND BELLEVUE MEDICAL SCHOOL,
AND
A. N. RICHARDS, PH.D.,
OF NEW YORK;
RESEARCH SCHOLAR OF THE ROCKEFELLER INSTITUTE.

IT is the object of this communication to call attention to the fact that when a considerable quantity of adrenalin (Takamine) is injected into the peritoneal cavity of a normal dog there follows a rapid and usually considerable excretion of dextrose with the urine. This fact was noted in the course of a research upon the functions of the pancreas, which is being carried on by the writers under the auspices of the Rockefeller Institute for Medical Research.

Apparently the first observations on the influence of the suprarenal gland upon carbohydrate metabolism were those of Blum[1] who found that the urine of animals subcutaneously injected with considerable quantities of an extract of fresh suprarenal gland regularly contained sugar, even when the diet of the animals (chiefly dogs) had been free from carbohydrates. The highest percentage of dextrose observed was 3.8 per cent.; usually the concentration of sugar in the urine was much lower.

The discovery of Blum has recently been confirmed by G. Luelzer[2] and, in this country, by Croftan.[3] The latter writer reaches the conclusion that the glycosuria observed by him in rabbits and dogs depends on the action of a diastatic ferment in the suprarenal gland which converts the glycogen of the liver into sugar.

The observations made by us on the action of adrenalin in producing glycosuria are strongly opposed to the idea that the suprarenal glycosuria is connected with a diastatic ferment contained in this organ. Further reference will be made to this point.

Two very recent publications[4] relating to the chemistry and pharmacology of adrenalin fail to make any reference to the ability of this preparation to induce glycosuria and it seems fair to infer that this action of adrenalin has not heretofore been noted. The omission is the more noticeable as one of these papers is by Takamine (to whose ingenuity we owe adrenalin) whom one may presume to be fully familiar with the investigations that have been made on the properties of the extract.

The following are brief extracts from the protocols of our experiments:

Experiment I.—A small terrier (about 16 lbs.) received 6 c.c. of a 1-1,000 adrenalin solution (Takamine) in the peritoneal cavity. During the following two hours there were repeated vomiting and great excitement which gave way to prostration and unsteady gait. Urine previous to injection contained no reducing substance. Urine passed six hours after injection contained 6 per cent. of sugar by fermentation (6.11 per cent. by Fehling) and yielded a typical glucozazone. No more urine was secreted. The animal died about twelve hours after the injection, after having had bloody diarrhea.

Autopsy.—Peritoneal cavity contained about 30 c.c. of bloody fluid. Entire gastro-enteric tract, from lower end of esophagus to anus, intensely congested. Mucosa deep purple color, surface denuded of epithelium. Congestion most intense in descending colon and rectum. Pancreas unevenly hemorrhagic and congested throughout. Liver and spleen normal. Kidneys slightly congested. Suprarenals appear slightly congested at junction of cortex and medulla. Tissues preserved in Ohlmacher's fluid. Sections through descending colon show mucosa to be entirely denuded of epithelium in places. Submucosa is seat of numerous and extensive hemorrhages. Pancreas shows considerable congestion, most noticeable in the capillaries close to the islands of Langerhans. Many lobules are the seat of hemorrhage and near such hemorrhages the secreting cells are in all stages of disintegration. Numerous focal necroses involving nearly entire lobules. In some parts the acini are well preserved. Between the necrotic areas and the well preserved acini are zones of acini showing various grades of cell degeneration. In places the cells composing the islands of Langerhans show only slight degenerative alterations of the cell-bodies, the nuclei retaining their normal structure and staining properties. In very many places these cells are markedly altered, the protoplasm of the cell-bodies showing a high degree of granular degenerative change. The cell nuclei have in many instances lost their chromatin, and are barely distinguishable. Many of these nuclei are very pale and some show no coloration by hematoxylin. It is noticeable that in many places the acini about these much damaged cells are comparatively well preserved. The acini that are not necrotic are widely separated and the connective tissue is looser than normal, suggesting the presence of edema. The kidney shows only the signs of acute congestion. The suprarenal structures are unaltered.

Experiment II.—Small dog (about 20 lbs.). Animal bled; 30 c.c. for sugar determination. Urine collected at this time reduces Fehling's very slightly. Soon after bleeding received 6 c.c. adrenalin in peritoneal cavity (1-1,000 solution). Urine passed forty-five minutes later contained an abundance of reducing substance (Fehling's); by fermentation 4.20 per cent. glucose. Vomited several times within a few hours of injection; later had bloody diarrhea. Urine passed during

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*The observations referred to in this paper were made partly in the laboratory of Dr. Herter, partly in the Laboratory of Physiological Chemistry, College of Physicians and Surgeons, Columbia University.

[1] Ueber Nebennierendiabetes, Deutsches Archiv für klinische Medicin, Bd. 71, Heft. 2 and 3, p. 146, 1901.

[2] Zur Frage des Nebennierendiabetes, Berliner klinische Wochenschrift, No. 48, s. 1209, 1901.

[3] Concerning Sugar Forming Ferment in Suprarenal Extract. A Preliminary Report on Suprarenal Glycosuria, American Medicine, Jan. 18, 1902.

[4] E. M. Houghton, The Pharmacology of the Suprarenal Gland and a Method of Assaying Its Products, Jour. Amer. Med. Assoc., Jan. 18, 1902, and J. Takamine, The Blood-Pressure Raising Principle of the Suprarenal Gland, Jour. Amer. Med. Assoc, Jan. 18, 1902.

night after injection reduced Fehling's strongly. Urine in bladder twenty-four hours after injection contained 0.4 per cent. glucose. Animal bled for sugar determination, then bled to death.

Autopsy.—Congestion of mucous membrane of stomach, lower jejunum and ileum in patches, intense congestion of greater part of rectum, irregular congestion of colon. Pancreas irregular and finely mottled with pink. Appears normal on section. Kidneys and spleen look normal. Suprarenals look congested in cortex. Blood drawn before injection contained 0.163 per cent. sugar. Blood drawn after injection (when urine contained 0.4 per cent.) contained 0.174 per cent. glucose.

Experiment III.—Large mongrel terrier (about 40 lbs.) received 10 c.c. adrenalin solution (1-1,000) intraperitoneally. Urine drawn within five minutes after injection contained 0.25 per cent. glucose. Urine collected next day did not reduce Fehling's. Animal vomited after injection, but showed no prostration and had no diarrhea. Recovered.

Experiment IV.—Large dog (about 30 lbs.), bled for sugar determination. Urine collected after bleeding free from sugar. Injected intraperitoneally 18 c.c. adrenalin solution (1-1,000) which had been boiled for five minutes. In half an hour animal became violently excited and remained so for more than one hour, howling continually. Vomited several times. Refused food six hours after injection, but drank water. Urine collected four hours after injection contained 3 per cent. sugar by fermentation and reduced Fehling's strongly. Recovered.

Experiment V.—Large dog (about 50 lbs.); urine free from sugar. Received 8 c.c. adrenalin solution (1-1,000) in peritoneum. After remaining quiet about half an hour after injection, vomited and became violently excited for more than one hour. Excitement then gradually wore away. Urine collected four hours after injection contained 9.17 per cent. of glucose and 1.84 per cent. nitrogen. The ratio of nitrogen to dextrose was thus 4.98. Six hours after injection, animal refused meat, but drank water. Day following injection animal appeared in good condition and urine was free from glucose. Recovered.

Experiment VI.—Small dog (about 18 lbs.); urine free from sugar. Received 8 c.c. adrenalin solution (1-1,000) in peritoneal cavity. One hour later urine contained 6.9 per cent. glucose. Eighteen hours after injection urine contained 2.0 per cent. glucose. Forty hours after injection no reducing substance was present in the urine passed at this time. Recovery.

Experiment VII.—Small dog (14 lbs.) received 5 c.c. adrenalin solution (1-1,000) intraperitoneally. Soon vomited. No excitement but some prostration and drowsiness. Urine before injection 0.46 per cent. glucose (Pavy's method); after injection (twenty-one hours later) urine contained 5.26 per cent. glucose.

Experiment VIII.—Large dog (about 40 lbs.). On January 14th given 1 gm. phloridzin under skin. Next day urine, previously free from sugar, contained large quantity of glucose. January 15th received 1 gm. phloridzin under skin. January 16th urine continued to show large quantity of glucose. January 18th urine contained about 1 per cent. glucose. Animal fasted from January 14th to 18th. On evening of January 18th received a moderate allowance of lean meat. Animal then fasted until evening of January 23d. On January 22d, urine being entirely free from reducing substance, the dog was given 10 c.c. adrenalin solution (1-1,000) intraperitoneally. Urine collected four hours after injection failed to reduce Fehling's solution in the slightest degree. Urine passed about twenty hours later reduced Fehling's solution slightly (0.1 per cent. glucose). Soon after last collection animal received 1 gm. phloridzin. Next urine passed contained an abundance of glucose (1.28 per cent. glucose).

Experiment IX.—Dog (24 lbs.) received 7.5 c.c. adrenalin solution (1-1,000) under skin. Urine before injection 0.31 per cent. reducing substance (Pavy); twelve hours after injection 0.47 per cent. reducing substance. After this collection animal received good meal. Eight hours later 10 c.c. adrenalin (1-1,000) in peritoneal cavity. Four hours later urine contained 5 per cent. glucose.

Experiment X.—Dog (30 lbs.) received 10 c.c. adrenalin solution (1-1,000) under skin. Urine before injection 0.48 p er cent. reducing substance (Pavy). First collection after injection 0.66 per cent., second collection 0.52 per cent. reducing substance.

Experiment XI.—Dog (50 lbs.) received 15 c.c. adrenalin solution (1-1,000). Urine before injection contained 0.33 per cent. reducing substance (Pavy); second collection, 0.57 per cent.; third collection, 0.42 per cent.; fourth collection, 0.46 per cent.; fifth collection, 0.44 per cent. reducing substance. Second, third, fourth and fifth collections were made *after* injection.

The observations here recorded show that the intraperitoneal injection of adrenalin solution (1-1,000) in doses varying from 6 to 10 c.c. was in each instance followed by the appearance of glucose in the urine.[5] In one instance the percentage reached 9.17 per cent.; in another it was as low as 0.25 per cent. In one instance the sugar appeared in the urine in less than five minutes. Two of the dogs died. All vomited and showed more or less violent excitement after the injection. Those which recovered showed some degree of prostration twenty-four hours after the injection. With two exceptions the dogs used had been on a diet of lean meat previous to the injections.

Experiment VIII. appears of special interest, because an effort was made greatly to reduce the store of carbohydrate material by means of injections of phloridzin together with deprivation

[5] Since the foregoing was written an observation has been made regarding the local application of adrenalin solution to the pancreas. Dog, previously used in Experiment V., after his recovery and the disappearance of glucose from the urine, was etherized and the abdominal cavity opened. Pancreas exposed and 1 c.c. of adrenalin solution (1-1000) plus 1 c.c. of water applied to its surface by means of a soft brush. After a slight immediate blanching of the gland, congestion followed simultaneously with the appearance of glucose in the urine, ten minutes after application of the adrenalin solution.

of food. It is noticeable that urine collected four hours after the injection did not contain any sugar, although glucose subsequently appeared in very small amount.

Another feature of interest is the fact that an abundant excretion of glucose followed the injection of an adrenalin solution which had been boiled for five minutes. We should expect any diastatic ferment contained in the extract to be destroyed by this treatment. Indeed the method described by Takamine[6] for the preparation of adrenalin renders it most unlikely that any diastatic ferment would resist the injurious action of the heat employed in the course of the process for the purpose of getting rid of albuminoid substances. To accomplish this involves an exposure to 90° to 95° C. for a period of one hour.

It may also be pointed out that adrenalin can be added to a solution of glycogen and kept in the incubator for twenty-four hours without any conversion of glycogen into sugar. These different considerations show that there is no reason for attributing the glycosuria from adrenalin to the presence of a diastatic ferment. There is also no satisfactory ground for referring to a diastatic ferment in the suprarenal body the glycosuria caused by any extract of this gland.

Attention is directed to the observation that the dogs which received adrenalin subcutaneously showed only a slight increase in the reducing substance of the urine. With doses of equal size these results contrast sharply with the glycosuria following intraperitoneal injections.

The alterations noted in the intestine and pancreas in Experiment I. are remarkable. They indicate that the suprarenal extract is capable of inducing changes of a highly destructive character in these parts. How these alterations are brought about we shall not undertake to discuss here, as it is our intention to speak of these lesions more fully in another connection.

While we do not at present care to express an opinion as to the relations between the glycosuria caused by adrenalin and the lesions observed in the pancreas, it may be stated that we have already made observations which suggest that this glycosuria is in reality of pancreatic origin. It is not, however, maintained that advanced pancreatic lesions like those to which we have referred are essential to the glycosuria in question.

Among the topics which we reserve for future discussion in connection with adrenalin glycosuria or diabetes are the glycogen content of the liver and muscles and the sugar content of the blood.

We feel justified in emphasizing the following facts:

1. Adrenalin given intraperitoneally is capable of inducing a marked glycosuria, in which the percentage of sugar may reach 9.17 per cent., and the ratio of nitrogen and dextrose 4.98.

2. Adrenalin glycosuria is not dependent on the presence of a diastatic ferment stored or formed by the suprarenal gland.

3. Adrenalin injections are sometimes followed by destructive lesions of the gastro-enteric tract and pancreas.

4. After a fatal dose of adrenalin the cells composing the islands of Langerhans were found to be the seat of granular degeneration, very pronounced in some places. The nuclei of many of these cells showed extensive loss of chromatin substance. In some parts of the pancreas the cells of the islands of Langerhans were much more injured than the surrounding cells of the secreting acini.

6. With equal doses of adrenalin the intraperitoneal injections proved much more efficient in the production of glycosuria than injections under the skin.

[6] Loc. cit.

SANITARY ASPECTS OF NICARAGUA VS. THOSE OF PANAMA.

BY J. EDWARD STUBBERT, M.D.,
OF NEW YORK;
FORMER CHIEF SURGEON OF THE NICARAGUA CANAL COMPANY.

In the Medical News of January 4th appeared an article entitled "Sanitary Aspects of the Panama and Nicaragua Canals," written by Mr. Soper, of New York, Sanitary Engineer, in the opening paragraph the article is referred to as being a disinterested one. To those familiar with the physical and climatic conditions of the two routes, as well as with their medical history, two facts are to me very patent, viz., either the article referred to is not a disinterested one, or the writer is from my point of view misinformed concerning his subject.

He states the truth when he says, "Not only is the question of health a factor to be considered in the construction of the canal, but when the canal is completed the rôle of this great waterway, in promoting or endangering public health, will be a subject of immense commercial importance;" but it is astonishing for him to say, "Since the period of the Spanish conquest, many attempts have been made to colonize Central America, but the foreigners of Spanish extraction are the only ones who have been able to withstand the climate with even a tolerable degree of success." The truth is that Central America possesses many beautiful spots of great healthfulness and large foreign colonies have lived successfully there for years; and, if the same common sense is observed in selecting sites for residences as is observed in the United States and European countries, the Anglo-Saxon can live at least as many years and with as perfect health in Central America as elsewhere. The description of the physical condition of the natives can be applied justly only to a few of the Peon class, who are located along some of the low, malarial districts. The writer of the article referred to also shows a lack of precise knowledge of geographical as well as political lines by confounding Central America with the Isthmus. Those acquainted with these countries are well aware of the fact that the Isthmus is not within the bounds of Central America, the five republics of which district are all situated north of the Isth-

mus of Panama, which lies within the limits of South America. This misconception of the subject is perhaps not to be wondered at, when many intelligent people in the United States think that Nicaragua is situated south of the Isthmus of Panama. The fact is that between Nicaragua and the Isthmus proper is situated the high and mountainous republic of Costa Rica.

Now, as to the comparative healthfulness of the two districts, in referring to Panama, this writer says, "According to Wallis, 'smallpox, yellow fever and paludal fevers in their infinite varieties and forms are never absent from these intertropical regions where they are truly endemic.' Nelson, after an experience of five years at Panama, gives his approval of the statement long made with reference to the Isthmus, that it is the 'Grave of the European.' It has also been called the 'Pest House of the Tropics,' and Bigelow says that here truly 'Life dies and death lives.'

"In the contracts let by the old Panama Canal Company, the latter was compelled to supply the labor. The total population of Panama was estimated at not above 150,000, and, as many thousand workmen were required for the work upon the canal, it was necessary to import labor from abroad. In the effort to supply the demand, many laborers were brought from the Island of Jamaica, but of these many soon fell sick and died, and a large number of the remainder left the work to escape a similar fate. Other workmen came from Carthagena, the British Antilles and the lower Mississippi Valley. Of all the labor employed, the most hardy workers, as regards ability to endure hardship and resist disease, were a tribe of Indians from the Magdalena River.

"The sickness and loss of life among the men engaged at work upon the canal have been variously stated. Davidson declares that of a force of 7,000 men, the company reckoned that about 1,000 men were always in hospital. From other sources we learn that the sickness and death-rate among the laborers were very high. In Panama and its vicinity 37 engineers out of less than 100 are said to have died during the months of March and April, 1882. An observer declares, 'There was a single French engineer who had been able to attend to the work beyond one year and a half, although the contract called for two.' In September, 1884, it is said the Canal Company buried 654 officers and men. There were many sanitary abuses when the canal work was first begun, and the method of charging the contractors for the care of the men in hospital no doubt caused the laborers to be kept at work when they should have been under medical care.

"The health conditions as officially reported by French authorities, do not show the high mortalities from diseases incident to the climate which have been indicated by travelers and other independent observers. But Heffenger declares that it was impossible for him to gain access to the health records of the Panama Canal Company and that the impression gained by him after investigating the matter privately was, that the public reports were garbled and incorrect. Dr. Heffenger states that he was informed by a leading physician of Panama that in the first eleven months, during which preliminary work in the canal was under way, 65 officers and 800 men died of disease.

"It is recorded by Liddell that 382 patients treated by him between the middle of June and the succeeding May, 250, or more than two-thirds, were suffering from remittent fever with bilious, gastric or enteric complications. Referring to the importation of labor for the Panama Railroad, Liddell says that the services of laboring men from the United States could not be counted on for three successive months. Before the end of the second month one-half of the force was on the sick list or enfeebled by sickness already sustained."

The foregoing statements as to the fatality of the climate along the Panama route, or what is truly the Isthmus, are not at all exaggerated. It has been roughly estimated that, in the construction of the Panama railway, every cross-tie represents a human life. Let us look at the other side of the picture, namely that of the health records of Nicaragua. Carefully kept medical statistics show that *the death-rate among the employees at work along the route was seven-tenths of one per cent.* The greatest amount of sickness was encountered in building a railway through a swamp, eight miles from the coast to the foothills. In constructing this route, laborers were obliged to work all day long in swampy water varying from three to five feet in depth. The laborers were drawn, as in the Panama enterprise, from Jamaica and other West Indian islands, with a small percentage of Anglo-Saxons from other countries. In no instance, as far as my memory goes, did an Anglo-Saxon employee of the Canal Company who was engaged in work along the line die from any climatic disease when the proper rules of living were observed. Nearly every employee, along the Nicaragua route had an attack of malarial fever within a short time after landing, but the hospital record shows that the average length of time that such an attack incapacitated a man for work was five and one-half days, thus proving that this same form of remittent fever is less severe and of shorter duration in Nicaragua than in our own Southern States.

Contrary to the statement of the writer of the article referred to, I wish to say emphatically that cases of pernicious fever were not numerous along the Canal route. Epidemics of pernicious malarial fever do occur in the cities of the interior of Nicaragua in the fall months, but, comparatively speaking, their number is small. During a time when towing steamers were busy between Colon on the Isthmus of Panama and Greytown in Nicaragua, it is a notable fact that some of the crews engaged in this work developed Chagres fever, and *it is remarkably significant that every patient with this disease who*

was landed at the Nicaragua port recovered, while a large percentage of those landed at the Panama port died.

Yellow fever is always present, more or less, on the Isthmus of Panama; never, to my knowledge, has a single case been seen along the line of the proposed Nicaragua Canal. Isolated suspected cases have been met with well to the west of the route, between Managua and Corinto. I have seen many of these cases personally and have always been of the opinion that they were nothing, more or less, but exaggerated cases of pernicious fever of the icteric variety. One important factor would seem to settle this in the minds of disinterested observers, namely, that the victims of this fever had recurring attacks, from fourteen days to a number of months apart, and but very few of them died in the first one. Moreover, the paroxysms were generally absolutely controlled by the hypodermic administration of quinine.

The men engaged in work along the Nicaragua Canal in the jungle or forest, after reaching the foot-hills, showed a very small percentage of illness and no fatality. The lake region in Nicaragua is notoriously healthy, while along the western division, between the lake and Brito, we find a region healthful in every respect for foreign residents.

Greytown, at the eastern terminus of the Nicaragua route, also possesses among its permanent residents, as compared to Colon and Panama, a remarkably good health record. The physical conditions of the two countries make very plain why Nicaragua is more healthful than Panama. One can satisfy one's self on this point by studying the papier-mâché models of the two routes. On the Nicaragua route, at the east end, there is a short distance of five or six miles through swamp land with a sandy bottom, or, in other words, mostly made land from the ocean; from this point, the hills rise with such abruptness as to make rapid currents in the numerous small rivers flowing from them. The broad San Juan River itself is a mighty stream, flowing with great velocity from Lake Nicaragua to the Atlantic seaboard. When we reach the lake, there is an immense body of water across which are blowing, twenty-eight days out of every thirty, the strong northeast trade winds which have come across the Caribbean Sea. These same winds are probably greatly responsible for the healthfulness of Greytown, or the eastern terminus of the Canal.

The writer of the article referred to placed considerable stress upon the excess of rainfall at the eastern terminus of the Nicaragua Canal. I simply have to reply that it is an open question in the minds of observers of experience whether or not excessive rainfall necessarily means greater unhealthfulness. I am inclined to believe the contrary. Even allowing—which is a fair deduction—that during the work of more active construction the mortality along the Nicaragua route would be greater than during the so-called preliminary work, all well-authenticated statistics, derived from actual experience rather than from antiquated records of individuals, should lead us to believe that the death-rate along the Nicaragua Canal can never even approximate that experienced on the Panama route, and that, after the Canal is once built, the country should resume its present healthy conditions and be a safe place for tourists and pleasure-seekers. In fact, there is reason to believe that on the island of Lake Nicaragua there could and would be established a favorite winter resort, fully as attractive and healthy as some of our noted West Indian Meccas for pleasure-seekers. The mountainous regions that surround Lake Nicaragua abound in beautiful and healthy locations among the coffee fincas. No sane man would ever do more than travel over the Panama route as rapidly as possible.

The conclusions which I believe may be drawn from reliable statistics are as follows: (1) The natural conditions of the Central American or Nicaragua route are far more conducive to health than those along the Isthmus of Panama route. (2) The endemic diseases of the Panama route are far more fatal than those along the Nicaragua route. (3) During the time of actual construction, while there would necessarily be an increase of sickness, the mortality would be remarkably below that on the Panama route. (4) After the completion of the Canal, the regions bounding the Nicaragua route would be capable of development by the Anglo-Saxon, while he could not safely live along the Panama line.

Finally, let me draw attention to the fact that much more money was spent *per capita* by the medical department of the Panama Company than by the Nicaragua Company, and yet the results are in favor of the latter Company; and perhaps the most significant of all as weakening the argument of the article referred to, is the fact that the writer acknowledges that he had been unable to obtain authenticated statistics of the French Company, while those of the American or Nicaragua Company have always been open to those who cared to read them. It is a well-founded belief of many students in this country that there is a very patent reason for the withholding of the statistics of the Panama route.

Although the Canal Company has sent in a supplementary report to the Construction Committee in favor of the Panama rather than the Nicaragua route, they have done so on engineering and financial grounds, stating that they still adhere to the opinion that the hygienic conditions are entirely in favor of the Nicaragua route. This opinion has been expressed by men who have personally investigated the matter.

25 East Forty-fifth Street.

German Medical Society.—At the next regular meeting of the German Medical Society, to be held Monday, February 3d, Dr. F. Maass will read a paper on "Operations for Tumors of the Nasal Passages" and Dr. M. Einhorn will report a case of "Hodgkin's Disease and Lymphatic Leucemia."

A WORD ON SPECIALIZATION IN MEDICINE AND SURGERY.[1]

BY WM. M. POLK, M.D.,
OF NEW YORK;
PROFESSOR OF OBSTETRICS AND GYNECOLOGY, MEDICAL DEPARTMENT, CORNELL UNIVERSITY; GYNECOLOGIST TO BELLEVUE HOSPITAL, ETC.

In looking for a subject for this occasion, I selected one which touched the principle upon which your institution was founded and upon which it has rested ever since, viz., the specialization of surgical work.

As the area of surgery broadened and deepended, there were some who felt, as in other fields of human endeavor, that better results could be obtained in this were individuals or groups of individuals to concentrate study upon certain regions of the body, thus attaining better understanding of the causes and behavior of the disorders occurring therein and becoming more skilful in dealing with them. The same question, however, arose that had always met specialization, no matter where applied, namely, Where shall the lines of demarcation be fixed? A student of your history learns that in the contention upon this point you came near defeat, but truth is mighty and will prevail, so you scored victory. The general surgeon, as he is called, was your foe and a strong one as well. Holding the conviction that there was no good surgeon but the one who was equally at home in all parts of the body, he presented precedent and invoked practice to sustain his position; in all of which he was within his rights as then recognized, for his education was, of course, planned to cover the entire body, and it is hardly too much to say that he was generally regarded quite as competent to extract a cataract from the eye as to cut off a leg. But his eye was opened to the advantages of some specialization by what he saw was happening with eyes he left to those of his guild who were giving special attention to their ailments. This in reality established a precedent for further contention for special privileges. To be gained, however, as was but right, the necessity must be proven, then insisted upon, and continuously striven for. From such an effort grew this institution, the first, I believe, in the world, and a striking triumph of the doctrine of woman's rights. I have already cited the familiar adage, "Truth is mighty and will prevail," as the basis of your victory over the forces contending against your recognition. But I really think the woman in the case did more to turn the scales of victory your way than did mere abstract truth. I fear the venture would have long sat outside the gate had not her potent fingers touched springs and unloosed fastenings, leaving but dead weight to those whom Nature has always placed at her disposal.

Since I have said so much, perhaps, in view of the more or less professional character of this audience, it would be better to digress a little and say a word upon the general subject of specialization in our profession, medical as well as surgical, that which touches the general physician as well as that which involves the general surgeon. The problems presented to the physician are of such a nature that a broad view of the subject compels the conclusion that his work can be specialized to but a limited degree, if the interests of the patient are to be subserved. The large majority of conditions he treats are general rather than local, and, of those which are local, most pass of necessity into the hands of the surgeon, and, if not, are apt to form distant connections necessitating radical changes or substitutions of management, such as would carry him far from the initial position, in fact, might and often do carry him all over the field. I venture to say that most, if not all, of you have had experience verifying this statement. It is not sufficient answer to reply that, the function of the specialist being concentration of study upon one or a set of ailments or organs, he therefore is in the best position for early detection of divergences and for speedy application of remedy, because, so complex is the interrelation of organs which can be selected for specialization in medicine, a disease in one may have its first open manifestation in the derangement of another; hence, even should one begin as a specialist, he would be quickly driven to cover the whole field. With perhaps the exception of the specialty of nervous ailments, those which obtain in medicine are really based as much upon the physical and mechanical as upon the mental limitations or requirements of the situation. He who deals with sound and its variations, as with heart and lung ailments, must be clever with his ear, and he who looks after the children must be at all times a general practitioner and yet possess the time and patience to meet all sorts of irregular calls from beings who can tell him little at first hand, except through involuntary and unconscious expressions and attitudes, needing some special adaptation or training on his part properly to interpret. The only real specialty in medicine is neurology, rendered so by the dominant and decisive influence of the nervous system, and the need on the part of the practitioner for great elaboration of method in exploring a case and extraordinary patience and self-control in the management of people in whom will power is often wanting as an aid in cure.

The essence of surgery is a knowledge of topography of the function of the organs and a familiarity with the processes of inflammation and repair. A surgeon must be an anatomist, a pathologist, and a physiologist. He must have profound knowledge of all conditions of the system which influence its reparative work and must know how to differentiate conditions requiring his aid from those which the patient can master without it. But, after all this is acquired, that man is the best surgeon who has at his ready command the most complete acquaintance with the region in which he operates, not only as it is normally, but as it may be altered by disease, so that, entering it, he may never be at a loss how to

[1] Anniversary Discourse, Woman's Hospital, Nov. 21, 1901.

proceed in order to get the best result with the least damage to the structure or organ involved and those adjacent thereto. It is evident, therefore, that the man does best who, having a good education in the principles of surgery and some experience in their general application, brings to his aid the widest experience in the section he is called upon to enter. When we realize how region after region of the body has been brought within the domain of surgery, how, where but yesterday medicine reigned supreme, to-day surgery prevails, insuring cures and saving lives which were abandoned, we see the enormity of the task put upon any one who attempts to cover the entire field. In the interest of surgery, then, some division of the field is wiser, in fact, more essential, than in medicine. It would make my remarks to technical, perhaps pedagogic, were I to attempt demarcation before such an audience, but it is not necessary; it is requisite only to make a general statement of the reason for the principle for which you stand. I must also say that here, as in no other department of human work, care must be taken to avoid extending too far the application of the principle. Its limitations will be fixed by results, for in the long run that specialty will survive and flourish which can show a better all-round result for the patient than can be had in the general field. The interest which all this possesses for you lies, first, in the pregnant fact that this Hospital represents the earliest organized and successful effort to erect gynecology into a distinct surgical specialty, and, second, in the question, How far have results justified your creation and continuance? It is scarcely fair to make you answerable for all the good or evil which has followed your initiation, but your influence has always been so powerful that any question touching gynecology must come home to you, for you have been its chief exponent.

For thirty years your position was all the most sanguine advocate could desire. Your influence was enormous, not only here, but throughout the world; the good you did is incalculable. Manual dexterity by workers who gave themselves to a thorough mastery of all details that pertained to the problems involved was the basis of your success. But there came a change. You were sending broadcast throughout the country men specially versed in your ways. The field of gynecology, practically ignored before, was rich in material and in reward. The temptation to enter it was great, so great that soon the country swarmed with those who, seeing your success and that of your graduates, professed to know your methods, to do your work. These novices would have discredited themselves at once, but for the introduction into surgery about this time of one of its greatest aids, the antiseptic or aseptic method of treating wounds. It seems paradoxical that an evil could spring from so great a good, and yet this is just what happened. This was the manner of it. Acquiring the knowledge that, under the cover of asepsis, wounds might be inflicted with comparatively small risk, these adventurers ignored nearly every other requisite of surgery and boldly entered where wiser men were treading with painstaking circumspection, and, though perhaps they met with success, it was generally of that kind you have heard of so often in which, in spite of it, somehow the patient did not do well. Too often unsatisfactory and ill results remained. So this specialty, so rich in opportunity, became the prey of incompetence, of ignorance, and of qualified quackery, from one end of this country to the other. The reaction in the professional mind which has shown itself is but the natural outcome of the laxity with which the better and what should be the guiding forces in our specialty have viewed and even continue to view the pretenders and their work. General surgery, from motives quite as human as any actuating us, is doing its best to regain the field, to bring it all back within the domain of the general surgeon, and if it can do the work better, it should do it and will do it. But it cannot. That which it will do, however, is this: Educate men in its hospitals in the general principles of surgery and its practice, giving them such opportunities for special work as their material and time will permit, trusting to a fuller acquaintance and the development and perfection of a special operative skill from further opportunities gathered in the walks of subsequent private practice.

Facts are stubborn things and the sooner faced, accepted and acted upon, the quicker the victory. In the face of present surgical perfections, it is truer than ever before that no great and worthy success can be reached in any of the departments of surgery by any one deficient in a thorough knowledge of its principles, and the one who first studies these principles as exemplified in practical surgery in general, and then as exemplified in the region or regions he intends to specialize, will make the best specialist. With such a foundation, the greater the opportunity for special study, the higher the perfection. You, as the foremost exponent of gynecology, must therefore, in common with all like institutions, take all this into serious consideration. Not only is your own life bound up in it, but the welfare of the specialty itself, for, if it can be shown that the general surgical hospital is able to turn out as good specialists as you can, in time you will wither and die. But mend your methods and you will prevail and that speedily. Recognize that you cannot from the very nature of your restrictions give the broadest surgical training, that this can only be had in a general surgical ward, and require therefore that every one who holds a place upon your resident staff shall have had such training. But, as Art is long and time pressing, consider that one coming with such preliminary training does not need to give the time you now exact to acquire that degree of special training required for good work outside your walls. Shorten your term of service so as to tempt men already provided with the two years required in the general hospital to continue their studies with you, who, for the present at

least, can still show them every variety of the special ailments they seek to master. In this way you attract the best of those who desire to specialize in your direction; you set your seal upon them and turn them forth to battle successfully for your fair name and for that of the great specialty you represent.

The tendency of all specialization is to narrowness and to exaggeration of minutiæ. The safeguard is a broad foundation, a thorough knowledge of the principles governing the whole field, and a practical acquaintance with their expression as witnessed in disease, and their application as required in remedial measures. Let the specialist be rather like the carrier-pigeon, which, when set free, circles round and round, ever rising higher and higher as it studies the general field, till, finally, gaining its elevation, it singles from the horizon the special direction it will take, and then flies straight as the arrow from the bolt to the place where it would be.

The curse of our profession to-day is the half-baked, underdone specialist, and this country is full of them. By their exaggeration of detail and magnifying of minutiæ, they blind the credulous, prey upon the nervous and the apprehensive, and end in disappointing the patient and bringing discredit to the profession they claim to adorn. Their work has done more to stimulate the medical fads of the day, Christian Science and all kindred things, than all else put together. The weary sufferer, heart-sick from a hope that could but be deferred, inasmuch as it is often based on the ignorant assumptions of an adviser who claims, and in too many instances has, reputable professional connections, abandons himself to any cure which irregular quackery may suggest.

And now, in the evolution of this discourse, I have reached a point at which I can cease to speak from the standpoint of the doctor and address you from that of the patient; for, after all is said that can be said upon the subject of proper medical and surgical training, the patient is the principal objective. It is for him and for her that the doctor exists and in making one or many of them trustworthy and efficient, it cannot be at the expense of the welfare of your charges. Trustworthy and efficient—and what constitutes trustworthiness and efficiency in one whose life is given to the alleviation of human sufferings? Can he view this body as but a laboratory of chemical action and reaction in which only physical forces are concerned, to which his mission therefore is merely that of one who adds this or extracts that, as these forces rise or fall in life's struggles? Can he see in it but a stick or a stone to be hewed or chiseled as lacking symmetry may suggest, or does he see that the essence of the being stricken before him, the mystery in it, that calls itself "I," is a breath of Heaven; that "that body, those faculties, that lie before him, is it not all a vesture for that unnamed"? Yes! a thousand times, yes! Trustworthiness and efficiency in our calling mean this and more. For in consecration of the work, as a light to make radiant every step of this arduous and self-sacrificing calling, he who is efficient and worthy of trust must see, can only see, that there is but one Temple on earth, and that is the body of man, built by God and with man's consent placed in our hands for safe-keeping. Mercy, gentleness, and skill will always go hand in hand with those who, accepting the charge, see who is the real dweller in that Temple, the breath that is the breath of Heaven, and such men, fitted for life's struggles as you are so well able to fit them, will never do other than ennoble all they touch.

MEDICAL PROGRESS.

PEDIATRICS.

Infantile Hepatic Cirrhosis with Ascites.—A case of hepatic cirrhosis of biliary origin occurring in a child of eight years is reported by Variot and Roy (Gaz. hebd. de Méd. et de Chir., Dec. 19, 1901). The history presented neither alcoholism, malaria nor other morbid antecedent. The child when first seen had marked ascites, well-developed collateral circulation, a large, smooth liver extending beyond the free border of the ribs; there was no icterus, no splenic hypertrophy. The possibility of a tuberculous hepato-peritonitis was considered and tuberculin was injected to the extent of 5 milligrams, but the elevation of temperature which resulted was less than five-tenths of a degree. Absolute milk diet was ordered, but the abdomen continued to swell, passing from 60 to 81 centimeters in circumference. Paracentesis was practised, and in succession five, six, then seven liters of clear serous fluid were withdrawn, containing chiefly epithelial cells with a very few lymphocytes. Shortly after an exploratory laparotomy the child died. The liver presented biliary cirrhosis. The extrahepatic ducts were manifestly diseased and the gall-bladder was thickened and contracted. The microscopical findings confirmed the diagnosis of a cirrhosis of biliary origin. Of clinical interest are the absence of icterus, the lack of enlargement of the spleen, and the absence of any notable enlargement of the liver itself.

Etiology and Morbid Anatomy of Tuberculous Meningitis.—A series of 27 cases of tuberculous meningitis personally observed during life and subsequently examined in the dead-house furnishes the material for a paper by E. Cautley (The Lancet, Dec. 21, 1901). No less than 22 of the 27 cases occurred during the first five years of life and only 5 during the second five years. In only one case was it stated that the mother was affected; in 22 cases it was definitely declared that there was no history of tuberculosis in the parents or in other children; in 4 cases the possibility of direct infection from a parent was present. In one instance only could injury be invoked as an etiological factor. In discussing possible channels of infection Cautley points out that in only two instances were the mediastinal glands normal; in these instances the tuberculous process was limited to the base of the brain. In 23 cases the mediastinal glands were caseous; the gland situated at the bifurcation of the trachea was most often affected. In 9 instances there was recent disease of the lungs, and in 12 cases extensive tuberculous disease of old standing. In only 2 out of the 12 cases of long-existing pulmonary disease was there evidence of infection of the mesenteric glands; from this fact the author's deduction is that the alimentary tract is not markedly susceptible

to infection by the human tubercle bacillus. Cautley does not take a very optimistic view of the prospect of operative treatment proving beneficial. In one-third of his cases there was no excess of fluid in the ventricles; in the remainder the fluid varied from a slight excess to a large amount. In many instances the cerebral tissues were soft and almost diffluent. Operative treatment can be indicated only under the assumption that the child is dying from coma induced by pressure. But many children died comatose in whom after death there was no evidence of increased intracranial pressure. Operative treatment would relieve pressure in only one-third of the cases, and even in these cases it would do little or no good on account of the softening so often present, which is dependent upon insufficient blood supply rather than on an excess of fluid.

Exophthalmic Goiter in a Child.—At a recent meeting in Paris, Leroy and Variot (Le Progrès Médical, Dec. 14, 1901) presented a child of four years, who six months previously had developed goiter, exophthalmos and tachycardia. For eighteen months he had had convulsions, and since the onset the symptoms had been much aggravated by an attack of whooping-cough. Strophanthus, bromides and salicylate were given with no result, and the child's condition was deplorable, when it was put on thyroid extract, one pill of gm. 0.1 (gr. ij) a day. From this time there was steady improvement in the condition. The authors also reported cases in which thyroid had done great harm.

Stone in the Bladder in Children.—Changes in the urine produce stones independently of the patient's age. M. F. Porter (Annals of Surgery, Dec., 1901) reports a case of one in a female child four years old. The attacks were for a time considered of intestinal origin and later, after careful inquiry and observation, of renal origin. Soon after this stones were passed with the urine. The trouble began when the baby was only six months old; during the next two years she had a great deal of trouble of the same kind and passed in all perhaps a teaspoonful of stones, ranging in size from that of a millet-seed to that of a large grain of wheat. The attacks ceased and for a while she seemed to be without trouble. When about four years old the patient was seen again and it was learned that for some days while passing urine she had had attacks of pain in a way to suggest stone in the bladder. Under sounding the diagnosis was confirmed. The operation was done two days afterward and the stone removed by suprapubic cystotomy. The stone weighed when thoroughly dry sixty grains and measured seven-eighths of an inch in width and three-eighths of an inch in thickness. The bladder was immediately sutured with catgut and the external wound with silkwormgut and a small wick of gauze left in the lower angle of the wound. This was removed in forty-eight hours. The bladder was drained for five days with the retention catheter and the child was discharged from the hospital on the 12th day of April cured. At the time of operation she was three years ten months and twenty-five days old.

GENITO-URINARY AND SKIN.

Peculiar Bladder Condition.—The case of a man who never had had syphilis but had had chancroids several times and gonorrheal urethritis many years before, and was an alcoholic, is reported by D. P. Anderson (Montreal Med. Jour., Dec., 1901). He says that a black fluid was removed from the right side of the scrotum after it had been there for nineteen years. Physical examination is negative except for double inguinal hernia and enlarged prostate. There is no urethral stricture. Immediately after voiding urine, about two ounces of residual urine can be obtained by catheter. From six days to a month apart, this man has paroxysms coming on during the night, in which he has a desire to urinate and at the same time has a kind of dizziness, fluttering heart, and irregular, intermittent pulse. During the next three hours or so he is obliged to urinate frequently, passing altogether one-half to three-quarters of a vesselful of urine, which is like water and free from albumin or sugar. The irregular heart action lasts about twelve hours longer, when all symptoms disappear, leaving him as well as before. Sometimes defecation is as persistent as urination. The author ascribes this polyuria and tachycardia to a reflex from the bladder brought on by the enlarged prostate.

A New Remedy for Gonorrhea.—Of the two principal classes of drugs which have been used in the treatment of this disease, silver and its preparations have the objection of being irritating and painful, while the various astringent compounds are comparatively inefficient on account of their lack of bactericidal power. A remedy which combines the desiderata of both classes without their unfavorable adjuncts is submitted after clinical trials by E. Jacobi (Deut. med. Woch., Dec. 26, 1901). The preparation has also been used in the treatment of leg ulcers, from which procedure it receives the proprietary name of "crurin." Chemically it is chinolinbismuthrhodanat with the formula $(C_9H_7N.HSCN)_2Bi(SCN)_3$. There are found in the saliva certain substances, combinations of "rhodan," which have a marked antiseptic character and contribute largely to autodisinfection. The astringent properties of bismuth are also well known and it is upon the combination of these effects that the value of the remedy rests. The preparation of the injection fluid is as follows: One gram of the substance is rubbed up with glycerin and water, five grams of each, and then dissolved in 189 grams of water, the mixture being thoroughly shaken. In recent cases two or three daily injections of from three to five minutes each are usually sufficient to cause a disappearance of secretion and gonococci in from ten to twenty days without pain or irritation. If recovery be tardy a supplemental protargol injection may be used once daily. In chronic cases irrigations may also be added, although good results were obtained without them. It seemed best to continue the injections t.i.d. for from eight to ten days after all traces of a morning drop had disappeared and then diminish them gradually. In gonorrhea of the female 10-per-cent. suppositories, in urethra or cervix, have been found of value.

External and Internal Urethrotomy.—The general treatment of urinary extravasations according to a procedure which has not yet found its place in the textbooks is described by Reginald Harrison (Edinburgh Med. Jour., Jan., 1902) in an article on the combined operations of external and internal urethrotomy. The first indication is to provide for the free escape of the extravasated urine by liberal skin incisions. The natural fistulæ do not suffice, however, to drain the bladder and the urethra must be made patent. The best method of drainage is by the perineal route, but in order to make it possible to perform the external urethrotomy upon a grooved staff of ample dimensions, the author first performs an internal urethrotomy of the stricture with the instrument of Maisonneuve. One cannot, however, remain content with the internal section, since it has been found to give rise to urinary fevers and to rigors, unless the perineal section be added to it. Drainage should be practised with a tube which tightly fits the perineal wound and admits of no leakage.

Operations upon the Prostate.—The results following operations for hypertrophied prostates have been

of doubtful utility until recently, and the dangers surrounding operations upon old men—the usual victims of this trouble—have been so great that many able surgeons are wont to advise "cleanly and judicious catheterism." H. LILIENTHAL (Med. Rec., Jan. 18, 1902) reports seven cases in which suprapubic enucleation has been performed; five patients recovered, one died and one received no benefit. He lays especial stress upon the value of making a suprapubic opening, even if perineal section be subsequently necessary. It is the only way in which one can gain absolute certainty as to the condition of the bladder; direct palpation and vision may then be used. Small nodules and masses may be quickly enucleated by this route and, if perineal section be necessary, important and valuable assistance can be given by a finger in the bladder. A complicating cystitis is also thus much better handled. Time is an important element usually in these cases, and the entire operation of suprapubic cystotomy and enucleation may be done in fifteen or twenty minutes. Free purgation and diuresis are important preparatory measures.

NEUROLOGY AND PSYCHIATRY.

Facial Hemiatrophy.—The report of a case of this rare disease in a woman of about twenty-four years, without hereditary taint, is made by L. F. FRANK (Med. Rec., Jan. 4, 1901). It first appeared in the forehead five years ago in the form of pigmented spots accompanied at first by pruritus, tingling and burning, and later by an atrophy of the affected parts. The left nostril, palate and tongue have become involved and recently the left auricle has become smaller and thinner than the right. Only one hundred cases have been reported and all authorities agree upon three etiological factors, namely, (1) the beginning in youth; (2) the predominance of the female sex, and (3) the great frequency with which the left side is affected.

Treatment of Tabes.—Fraenkel's movements have certainly resulted in marked improvement in many cases and, although the general course of the disease is probably not affected, several patients who had been bedridden for years were able to walk with the assistance of a cane after persistent attention to this method. E. BRAMWELL (Indian Med. Rec., Dec. 4, 1901) says that the patient should first be made to understand that his inability to walk is not due to muscular weakness, but to the inability to associate movements correctly; that the treatment is really a process of re-education and that it is not the muscular force which he uses that is of importance, but the care and precision with which he makes the movements. While lying in bed he should slowly raise his foot and touch with his toe an object held a foot or two above. The leg and thigh may then be flexed and after extension of the leg the same object may be similarly touched. These movements should be repeated again and again, constant improvement being sought for. When able to rise he should first be supported and simple deliberate movements tried. More and more weight is put upon the legs and the power of equilibrium trained. Walking along stripes, at first broad, then gradually narrowed and later marked off at intervals of one foot, may be suggested as a valuable exercise. A great number of exercises have been devised for the upper limbs, but these may be easily thought out for the individual case, always making them sufficiently simple in order that the patient may not become discouraged and that he may be impressed with the necessity of being accurate in his movements at the expense of speed and force.

Disseminated Sclerosis.—A case occurring with acute onset in a girl of eighteen years is recorded by J. MAGEE FINNEY (Dublin Jour. of the Med. Sci., Jan. 1, 1902). Within a month there were complete paralysis of legs and arms, loss of control of bladder and rectum, and bedsores on nates and over sacrum. After four months some of the power gradually returned, and she is now able to stand, and to walk some steps with but little assistance. The gait is spastic; knee, ankle, wrist and elbow reflexes are extremely exaggerated; Babinski's sign is marked in the right foot; tactile, thermal and algesic sensation is unimpaired. Coarse and irregular tremors affect the head and upper extremities when the smallest effort is made. Sometimes they are so marked that a glass of water cannot be carried to the mouth. The speech is slow, scanning, with some slurring of the words. The eye examination was made by H. Swanzy, who noted nystagmus, contracted field of vision, and atrophy of the outer portion of each optic disk. There was no retinitis, optic neuritis, or swelling of the disk. The patient has a complaisant cheerfulness, so characteristic in some of these cases, but no other evidence of mental weakness. The organic nervous diseases which may resemble disseminated sclerosis are as follows: Paralysis agitans, general paralysis, mercurial tremors, syphilitic disease of irregular distribution, ataxic paraplegia, intracranial tremors, and transverse myelitis. In a young woman whose manner and personal appearance suggest an emotional temperament, the suspicion of hysteria is sure to arise. The characteristic points in this case are optic atrophy without neuritis and with a disproportionate defect of the field of vision, nystagmus, syllabic speech, intentional tremor, exaggerated reflexes, spastic paraplegia and vesical paresis.

Hemiplegia.—Partial paralysis of sudden onset is not always fatal and hence treatment becomes a very important matter. J. TAYLOR (Lancet, Dec. 28, 1901), after discussing hemiplegia in adults, devotes his attention to it as it occurs in children, a matter often omitted by authors. He says there are two kinds. The first form is that of birth palsy, hemiplegic in type, usually bilateral in distribution, but occasionally unilateral. Its onset regularly occurs during birth, usually in first-born children and in cases in which the labor is long and difficult, or instrumental. The cause is meningeal hemorrhage; the affection must therefore be bilateral because the hemorrhage usually exists on both sides of the vertex. Occasionally, however, it is confined to one side only, and in this event causes true hemiplegia. The other form of hemiplegia in childhood, the ordinary so-called infantile hemiplegia, occurs in the early years of life and usually commences with a bilateral fit or a series of convulsions. The cause of this is uncertain. According to some it is an inflammation in the grey matter; according to others, a thrombosis in the arteries or in the veins. Sometimes there is athetosis and the patient is often subject to fits beginning on the paralyzed side. Another point is also of interest, *viz.*, the frequent maldevelopment of the paralyzed side, which becomes smaller in every way than the opposite side. The treatment of hemiplegia is divided into that of the onset and that of the results of the lesion. During the onset, if possible, the cause of the paralysis must be determined. If it is embolism, complete rest, light food, and extreme care to avoid any strain on the heart are the essentials. If it is hemorrhage, free purgation, light, easily-digested food, leeches to the temples if there is pain, and absolute rest are the main things. If it is thrombosis in advanced life, gentle catharsis together with cardiac stimulants and fluid diet are the best. If it is thrombosis in the young, then mercury and the iodide of potash must be energetically administered. Tumor and abscesses of the brain require appropriate surgical treatment, except that tumor may often be reached by active antisyphilitic remedies. The

results of hemiplegia require care as to the general condition of the patient. Loss of power and rigidity of the muscles call for massage and electricity. In all cases fresh air, gentle exercise and light, easily digested food are required.

Glycosuria and Insanity.—A tangible effort is being made to connect diseases and conditions which show changes in the nutrition of the body with insanity as being in the nature of cause and effect. W. R. DAWSON (Med. Press & Circ., Jan. 1, 1902) reports five cases in which such a connection appears to be more or less distinct. His conclusion is, taking all the cases together, their predominant characteristic was mental discomfort varying in degree and kind. The blood-pressure was high whenever taken during an acute stage of excitement. This association of glycosuria with melancholia was also found by Dr. Leeper, who recently published three cases and by Raimann and others also. The connection between the two therefore seems to be essential in cases of true diabetic insanity. The form of melancholia is that characteristic of cerebral anemia. If this is taken in conjunction with the atrophy found in diabetic brains, as a secondary morbid change, it becomes clear that the mental symptoms are due to cerebral malnutrition in whatever way this may be caused. It follows also from this that persistent glycosuria or glycemia, even if of secondary origin, is not unlikely to act injuriously on the nervous centers. He agrees with Raimann that the origin of the sugar in this second class of cases is in the digestive system and due to a deficiency in the capacity to assimilate sugar. Such a deficiency he has found to exist in a high degree in melancholia, although always present in acute confusion and other forms of insanity. It is merely a part of the general disorder of metabolism in the insane. Glycosuria is not necessarily a sign of bad prognosis in insanity. Of the author's case seven patients five made good recoveries and a sixth promises to get well.

Epilepsy; Definition, Symptoms, Prognosis and Treatment.—"Epilepsy is a disease of which we know extremely little definitely and with certainty nothing at all. Up to a certain point it is agreed as to what cases are to be included under the term; there is much real and trustworthy knowledge as to the etiology of the disease, but its pathology is largely conjectural and its treatment mainly empirical." In these admirable words W. H. BROADBENT (Brit. Med. Jour., Jan. 4, 1902) paints a clear word-picture of this too-little-known disorder. One cannot read the definition without feeling a glow of hope that some day the veil will be lifted. Many epileptics pass through life without the disease being recognized. This may occur in the more-or-less frequent nocturnal form of the lesion—an important deduction can be made from the fact that the atack almost invariably occurs during the minimum cardiovascular activity. It is extremely rare that the seizures take place during mental or physical exertion or excitement. This has a practical as well as a theoretical bearing, for it is not necessary to forbid epileptics to take exercise or to ride, or even to cycle in moderation. What can be the cause of the convulsions which are an invariable accompaniment of the disease? What is a convulsion? It might be called the result of an excessive and disorderly liberation of nerve energy. The precise nature of this force is not known, but it can only be a transformation of forms of energy which are more or less understood, and everything points to a chemical change in the nature of oxidation as its source. In any event, from whatever point of view the evolution of nerve energy is considered, the conclusion suggested is that in the grey matter there is accumulated a substance of an explosive character ready to liberate energy not by gradual combustion, as of coal, but by a sudden readjustment of chemical affinities, as of nitroglycerin. The prognosis turns mainly on whether the case is one due to hereditary inherent tendency or to causes extraneurotic. It is absolutely hopeless if with the liability to recurrent attacks of convulsions there are other evidences of a low type of nervous organization such as moral or mental depravity, microcephalism, or, indeed, any faulty construction of the cranium. Again, it is bad if the fits have begun in childhood or at or soon after puberty. If, however, the patient has mental and physical vigor; if some serious exciting cause has preceded each attack, if the fits have not begun until late, it may be presumed that the tendency to epilepsy is not strong and that it may possibly be held in abeyance. More important than either of the preceding is the condition of the circulation. A low tension is characteristic of the disease. If it has a relatively high tension for the age of the patient there is good ground for hope of recovery. The treatment is chiefly dietetic and hygienic. Should an epileptic boy or girl go to school? Almost always, if the fits are not too frequent and particularly in the case of boys, whose sensibilities are not so keen as those of girls. Bromides must not be given as mere routine, and if the intervals are six weeks or more the administration should be intermittent. The cases in which there is cardiovascular instability offer the greatest opportunity for brilliant results. At night they should be fed hot beef-tea with cayenne pepper or milk to which spirits of ammonia have been added. Epilepsy will repay further study. Jacksonian has been differentiated from true epilepsy; further distinctions will be established, so that in the future one will speak of "the epilepsies" rather than of epilepsy.

OBSTETRICS AND GYNECOLOGY.

Treatment of Adnexial Inflammations.—The conservative treatment of inflammations of the adnexa is thus summarized by R. PICHEVIN (Jour. d. Méd. d. Paris, Dec. 22, 1901): In acute inflammations, (1) rest in bed; (2) vaginal irrigation under low pressure, with hot antiseptic solutions, care being exercised that the return of the fluid is assured; (3) relief of pain by hypodermics of morphine, opium, suppositories, or injections of a solution containing laudanum; (4) limitation of inflammation by ice-bladder applied to the lower part of the abdomen; (5) wet cupping and leeches at the level of the iliac fossa are sometimes helpful; (6) quinine sulphate for fever; (7) purgatives, laxatives or enemata for constipation; (8) milk diet; (9) support of general strength, alcohol being used for depression. In the majority of cases this line of treatment suffices to abort more serious trouble, or at least to tide the patient over to a safer time for operation, should this become necessary. In subacute and chronic cases, much may be done to relieve and, in many instances, cure if the patient is in a position to give time to the treatment. In such cases the treatment is thus outlined: (1) Prolonged horizontal decubitus is contraindicated as producing venous stasis. (2) Coitus should be prohibited as tending to increase congestion. (3) Revulsion, by iodine, thermocautery or vesicant, is serviceable. (4) Glycerin, pure or combined with antiseptics, such as iodoform or salol, introduced in the vagina through saturation of cotton or sterilized lamp-wick, produces depletion by osmosis of serum, thus assisting in resolution of inflammations.

(5) "Colomnization," much used by Lyons physicians, has yielded good results. By this method the organs are supported by packing the vagina firmly with strips of aseptic or antiseptic gauze or sterilized lamp-wick, saturated usually with glycerin. The packing should be left *in situ* for two or three days, when it should be removed, an antiseptic douche given, and the packing replaced. This treatment should be employed for a long period, with occasional intermissions of two weeks, during which vaginal irrigation should be practised. (6) The effect of this method is enhanced by enveloping the lower part of the abdomen in cotton, over which is applied a rubber bandage in such a manner that it shall exert slight compression. This, with the vaginal packing, tends to immobilize the organs and assists the aqueous depletion through the glycerin, by slight external sweating. (7) Hot vaginal irrigation, the patient being in the recumbent position, is valuable; the same is true of high rectal enemata administered after evacuation of the rectum. (8) Other measures include electricity, uterine massage, and hydrotherapy.

Delivery in Hypermegaly.—A method used in the delivery of an unusually large fetus in which the shoulders became impacted in the pelvis after birth of the head is described by D. J. LARRU (Rev. d. Med. y Cir. Pract., Dec. 21 and 28, 1901). The patient was a woman of normal development and measurements who had previously given birth to children of remarkably large size. Labor pains were severe and the head rotated and descended slowly, but was expelled naturally; after the birth of the head, however, pains ceased and despite all efforts to stimulate uterine contractions there was complete inertia and it was found necessary to interfere. An attempt was made to draw down the anterior shoulder by hooking the finger into the axilla, but without success; the same maneuver failed with the posterior shoulder. The following method was used with satisfactory result: The index and middle fingers were introduced through the posterior commissure, the posterior shoulder pushed well up, fingers withdrawn, and head depressed strongly to the mother's anus, pressure being exerted upon the occipital insertion of the trapezius and mastoideus, with the result that the anterior shoulder glided easily under the pubic arch, the bisacromial diameter being diagonal to the vulva, and after half of the anterior shoulder was born the posterior followed and the rest of the body was delivered without trouble. The child measured 25 cm. from shoulder to shoulder and was 60 cm. in length.

Prolapse of the Cord.—This condition is a great misfortune and unless discovered early and treated successfully is apt to be fatal to the child. Any new method therefore of replacing and retaining the prolapsed cord is valuable. H. HENNE (C'blatt. f. Gynäk., 1901, No. 51) treated a case with ease and success in the following manner: After all other well-known means had failed the cause of such failure was found to be the attachment of the placenta, which was very low down and caused the head of the child to remain in the right aspect of the canal. The method he followed was suggested by the retention of loops of intestine away from the operative field in abdominal sections by means of gauze pads. He took a clean towel, soaked it in a one-per-cent. solution of lysol and squeezed it dry. He folded this into a pad, passed it into the vagina and then, after replacing the cord, gently forced the towel up into the uterus in such a position that the cord rested upon it and was retained by it. The procedure was easily carried out with the help of profound narcosis. The head of the child, of course, had to be pushed upward into the uterus. The intra-uterine hand of the operator was maintained within the canal until pains again appeared. It then guided the head of the child into its proper position and rendered the action of the towel more satisfactory. In this case the remainder of the delivery was normal and entirely free from a recurrence of the prolapse.

EYE, EAR, NOSE, AND THROAT.

Chronic Nasal Disease.—Although the inferior turbinate bone has usually been assigned as the basis for most chronic nasal diseases, it has often been noted that many cases exist which must be entirely out of its influence. C. H. BAKER (Phila. Med. Jour., Dec. 28, 1901) calls attention to the fact that the middle turbinated body has a much greater influence on the course and progress of these diseases, mainly on account of its intimate anatomical relations with the meati and accessory sinuses of the nose, the olfactory nerve and the most sensitive portions of the septum. The meati are readily obstructed by acute inflammations which soon become chronic, resulting in formation of granulation tissue and, later, polypoid growths. The author recommends removal of the middle turbinate in addition to taking out the polyps, as the latter are often thus concealed. Other indications for this procedure are: (1) Sinus occlusion by swollen mucosa which does not respond to cleansing and disinfection; (2) fetid crusting of discharges in the upper portion of the nasal chambers; (3) "bullous hypertrophy" of the bone; (4) nervous disturbances (severe sneezing, nasal asthma, hydrorrhea, headache, tinnitus) due to contact of bone with the most sensitive part of the nasal mucosa; (5) vasomotor rhinitis, as an adjuvant in obstinate cases. His operation is briefly as follows: After a thorough cleansing, an 8-per-cent. solution of cocaine is applied, followed by suprarenal extract. By means of Holmes' middle turbinate scissors the attachment of the bone to the lateral wall is divided from before backward. The cavity is packed with iodoform gauze which is removed on the following day. Frequent cleansing with borax solution is done until healing is complete; the latter may often be hastened by insufflation, the author recommending "dermatine," a lead iodide compound.

Tinnitus Aurium.—So serious may this symptom of disease become that it may lead to suicide or insanity. S. M. YUTZY (The Phys. and Surg., November, 1901) divides tinnitus into the vascular and the membranous forms. The former is due to overfilled or underfilled blood-vessels causing a disturbance of pressure-equilibrium of the labyrinthine fluid. The tinnitus of quinine, salicylic acid, etc., is due to a lowered blood-pressure, as is also the tinnitus of anemia. In membranous tinnitus the tympanic membrane is drawn inward; this is due to inflammatory affections of various kinds or to closure of the Eustachian tube. A valuable point in differentiating the vascular from the membranous tinnitus is that persons afflicted with the latter form hear conversation better when noises are about them, as in a railroad train. This is due to the fact that the numerous sound waves act on the membrane and steady it. Noises have no effect in controlling the flow of blood through the vessels, and hence the hearing is usually made worse by the presence of noises in cases of vascular tinnitus. If more attention be paid to the cause of these affections the treatment will be more satisfactory and more beneficial.

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SATURDAY, FEBRUARY 1, 1902.

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

THE ninety-sixth annual meeting of the Medical Society of the State of New York has had its usual crowded sessions. There could be no better index of the thorough-going desire for professional relations scientific and social on the part of the medical men of New York State and no surer sign of their interest in progressive medicine than the faithful attendance at these meetings. From the beginning of the first until the end of the last session readers of papers were greeted by large and attentive audiences.

This was the best attended meeting in several years. The program of the session was an extremely interesting one and notable even for the State Society. That the organization is able to hold two such meetings as the semi-annual session in New York City in October and the present one, only four months later, is a good sign of vigor of society life and of enthusiastic interest on the part of its members.

The features of the scientific program were the symposia on paresis and on diseases of the pancreas. It is agreed that, while paresis is not so frequent in this country as in the older countries, the disease is certainly on the increase among us. This increase is not of an immediately alarming character, but it calls for the most serious attention as to the possible prophylaxis of the dread disease. There is practical agreement among the authorities who read papers on the subject that syphilis is the main cause of the disease. Other conditions may contribute to the etiology. Overwork and mental anxiety are undoubtedly contributing factors. Excesses of every kind play a rôle, though alcoholism is blamed much less in the matter than formerly. Syphilis is, however, the manifestly determinative agent that produces paretic pathological changes. No profession or trade is exempt from the disease and in America, at least, the proportion of professional men and brain-workers is not higher than that of tradesmen of all classes, from the wholesale merchant to the country baker.

The obscure subject of diseases of the pancreas is being gradually brought into the light and the present review of it will do much to illuminate practical details in the application of recent scientific observations. In addition to these symposia a notable contribution was that of Dr. Noble of Philadelphia on the treatment of pelvic suppuration. His paper brings out the fact that conservatism is the watchword in present-day gynecology. It illustrates a phase of medical and surgical advance that is not so encouraging, however, since it shows that the accepted methods of treatment for pelvic suppuration of the present time are much nearer the methods of a quarter of century ago than they are to most of the intermediate steps by which the conclusion has been reached. Verily the pendulum swings to and fro in human progress and the inevitability of reversion to opinions once thought gone forever, but that contained a precious germ of truth never to be lost, is illustrated nowhere more forcibly than in medical advance.

ROYAL INTERMARRIAGE AND HEALTH.

NOTWITHSTANDING the persistent rumors of the ill health of King Edward VII. some time ago, there have been but faint-hearted denials of the reports that he was ailing, and these have concerned themselves chiefly in regard to his throat. It is said that official action in the matter would only give body to the rumors and arouse sensational conjecture. There are no grounds for thinking that the King is affected by laryngeal cancer, in spite of the very circumstantial reports on the subject in the sensational press, but there seems good reason to think that for a

time there was some pathological condition that disturbed the new monarch not a little.

Writing from London at the beginning of last month Mr. Justin McCarthy, the London correspondent of *The Independent* said: "It is quite certain that the King has been suffering from physical troubles of some kind, though I cannot hear that there is any trustworthy evidence for the apprehensions which are so commonly and so positively made public." Mr. McCarthy hints further that the basis for some of the rumors seems to be that the King has become persuaded that he is not destined to live to the time appointed for his coronation. This phase of the popular report finds some sanction in the fact that the King has lost within a comparatively short time a brother, the Duke of Saxe-Coburg, and a sister, the dowager Empress of Germany, from the dread disease, cancer, to fear of which persistent rumor now attributes his own depression of spirits.

Some of the radical English and Irish papers have recently suggested that at least the predisposing cause of the illnesses which are so common in the royal families of Europe at the present time is their utter disregard of the great law of Nature that discountenances the marriages of near relations. Ordinarily such remarks might be passed over with the reflection that political bias easily led to the assumption of general truths from particular instances. Mr. McCarthy, whose intimate acquaintance with contemporary history is well known by the many readers of his "History of Our Own Times," lends the weight of his authority to these declarations. He says: "At the present time there is hardly a European imperial or royal family which is not oppressed by serious and boding illness of some kind and it is only reasonable to say that some explanation of this fact may be found in the system of intermarriage."

To Americans generally it will, we think, come as a distinct surprise to learn on Mr. McCarthy's authority that with the exception of the King of Sweden, a descendant of Bernadotte whom Napoleon raised from the ranks and later made King, there is not a single important ruler in Europe who is not descended from Mary, Queen of Scots. In Macbeth, which was evidently written with the idea of courting the favor of James I., the first Stuart ruler of England, Shakespeare puts into the mouth of the witches this prophecy to Banquo from whom the Stuarts are by legend descended: "Your children shall be kings." Even the most obsequious of courtiers could not have anticipated how literally true this compliment to the Stuarts through King James was to prove. It is certainly a curious historical fact that the dynasty of the Stuarts, "in many ways the worst dynasty," as McCarthy says, "that ever ruled over England," should have left so many descendants among the reigning houses of Europe.

Meantime there is for the student of medical anthropology the spectacle of a series of inbreeding intermarriages that demonstrates the dangers and effects of marital consanguinity. Perhaps the lesson of the necessity for exercising more care as regards the relationship and other qualities of marital partners may thus be taught by example, if it cannot be enforced by the legal measures that are now so commonly suggested. In a word, the history of the present reigning families of Europe is an open book in which he who runs may read the evils of marriage where new blood is not constantly introduced to modify the degenerative tendencies of the original stock. The lesson may be learned better from a "horrible example" than from the cold logic of statistics on the subject.

A RECENT REPORT FROM THE CRAIG COLONY.

The eighth annual report of the Craig Colony for Epileptics has just been issued and the report of the Medical Superintendent, Dr. W. P. Spratling, contains matter of practical value to those interested in making public provision for this class.

Prior to the establishment of the Craig Colony there was no institution of the kind in America, and it is still the only one built along true colony lines; consequently we are interested in its development.

It is evident from the report that all persons having epilepsy are not fit subjects for colony life, for it seems quite conclusively shown that many of them are so unsound in mind as to make it, not only useless, but dangerous to permit them to live in an institution in which complete liberty is the privilege of every patient. The study of the mental condition in 1,070 cases, grading them as "good," "fair," "feeble-minded," "imbecile," "idiot," and "insane," and the analysis of the study that follows give some idea as to the class of epileptics which can be successfully colonized and that which cannot.

It would seem that more good could be done if the colony could receive patients whose dis-

ease was not of such long standing. Only 1½ per cent of the entire number had been epileptic less than a year before admission; while in the vast majority of cases the disease had existed for from five to forty years and over.

The study of "The Causes of Epilepsy," analytically made in over 1,000 cases, is of value, for one thing, in showing the great importance that hereditary factors seems to play; and, if there is anything to be learned from such a study, it ought to be the necessity for seriously considering the question of placing restrictions of some sort on the marriage and intermarriage of such people.

The report shows the treatment of patients to be along the broadest possible lines, and this is as it should be, when we remember that the epileptic and his disease should be regarded as a unit and that good results can come only from a recognition of this fact and the treatment of the individual and his disease at the same time.

We note the absence of any enthusiasm in reference to the surgical treatment of epilepsy. At the Colony they seem to think that the genuine disease is not so circumscribed a thing that it can often be removed by surgical intervention. Reference is made to the possible value of serotherapy in the treatment of selected cases, and we expect shortly to publish in the Medical News the Craig Colony Prize Essay on this subject by Dr. Carlo Ceni of Italy.

It is also pleasant to note the freedom of the report from the usual list of long cut-and-dried statistical tables that we have always thought took up much valuable space in such reports, without imparting any knowledge of a useful and practical kind.

The report speaks hopefully of the work of the year and progress made in the treatment, education, occupation and classification of patients. It has been learned that, without provision for occupation and classification, any scheme of this sort must fall far short of attaining the ideal. The *per capita* cost is given at $164.46 for the year, which to us seems very low, considering the scientific and educational work that is done, and we hope that economic reasons at Albany may not reduce it any further. The Colony now has a population of 750 patients, while new buildings are to be opened shortly for 100 additional patients.

THE BOGEY STATE.

It does not speak well for the tender mercies of the State that the people are afraid to trust the care of their helpless ones to its political visitations. Despite the would-be pacification in the altered terms of the Brackett-Rogers Bill, the fact remains that it abolishes the local Boards of Managers of the State Hospitals for the Insane; and the State Commission in Lunacy threatens like a Bogey to swallow the control and leave no trace behind it of that excellent system that has been the pride of the State.

The scare is real. It has taken one hundred people to Albany to protest against the Bill. It has called forth decided opposition from the most influential clergymen in the State. It has brought out a storm of opposition in the daily press; and it has agitated every one who knows anything about the control of an institution under the board of manager system versus the control by a commissioner. We venture to express an opinion that the present Commissioner of Lunacy was not aware that his unsullied reputation would be used as a cat's-paw to pull the chestnut of control out of such a ticklish place. We know well that he has no private ends to push and that power would not be abused by him; but once the authority is vested in the State Commission in Lunacy, how long will that office be open to a man who is a disinterested public-spirited physician?

ECHOES AND NEWS.

NEW YORK.

Health Advisory Board Organized.—The Health Department's new Medical Advisory Board has organized by electing Dr. Edward G. Janeway chairman, Dr. T. Mitchell Prudden secretary, and an executive committee consisting of Drs. Janeway, Prudden, Bryant and Brannan. Of the eleven physicians comprising the board, all but one were present at the first meeting.

Reduction in Death-Rate.—A reduction in the city death-rate was again shown last week, when the rate was 20.71, against 24.33 for the corresponding week in 1901. By excluding the deaths of non-residents and of infants under one week, the rate is reduced to 19.56. For the previous week the rate was 21.24. Cases of smallpox numbered eighteen; there were thirty for the previous week, against an average of twelve cases for the twelve weeks immediately preceding.

Opening of the New Lying-In Hospital.—The beautiful new hospital of the Lying-In Society was formally opened and the first patient admitted this week. There are eight floors and 140,000 square feet of floor-space. A tour of the structure reveals many features in the equipment that are unique in hospital building. The dimensions of the structure are 184 feet on Second Avenue, 166 feet on Eighteenth Street, and 83 feet on Seventeenth Street. Light comes from all four sides and through 1,159 windows. In the electrical system there is a device by which the light of the incandescent lamps can be made bright or dim at will. In the cellar are the engine, boiler, pump, and dynamo rooms and the machinery used for ventilating and refrigerating. The basement contains the out-patient de-

partment, autopsy-room, chapel, and fifteen bedrooms. On the first floor are physicians' rooms, library, and executive offices, while the second floor is given up largely to the nurses. The septic department, on the third floor, consists of twelve bedrooms, serving, operating, and dining rooms. Entrance to this isolated ward can be gained only by going through an open corridor. The fourth, fifth, and sixth floors are identical, each containing sixty-two beds for patients. At the foot of each bed is suspended a cradle. In addition to the wards, there are also private rooms for patients. A summer roof-garden and a winter sun-garden, enclosed in glass, are on the seventh floor, overlooking Stuyvesant Park. The new hospital is the gift of J. Pierpont Morgan, who at first gave $1,000,000 for the purpose. The price of building materials then rose and a larger sum became necessary. Thereupon Mr. Morgan increased this gift and the amount he has given to the hospital now amounts to $1,250,000. He has also completely furnished the institution with linen.

Loomis Laboratory Wins.—The decision of Justice Truax of the Supreme Court dismissing the suit brought by the New York University to recover the site and building of the Loomis Laboratory from the Loomis Laboratory Corporation has been affirmed by the Appellate Division. The laboratory had been used by the students of the University for several years and the Trustees of the University contended that although the title was held in the name of the Loomis Laboratory Corporation, the property was impressed with a trust requiring that it be used for the medical side of the University, which in equity was the owner. Col. Oliver H. Payne had given the site and the money for the building and equipment to the late Dr. Alfred L. Loomis, then connected with the University. The name of the donor was kept a secret for a long time. Col. Payne testified in the trial of the case that the University was not named in the transaction with Dr. Loomis. He had given the property and money in trust to Dr. Loomis for a Loomis Laboratory with the idea that the laboratory should afterward be conveyed to a corporation to carry on its work, which conveyance was made as he requested. He testified that at the time he hardly knew that there was such an institution as the New York University. The court says that the use of the laboratory by the University for several years does not establish a trust in its favor, as it was not shown that there was any trust of the sort going with the gift.

No Changes at Bellevue.—The Board of Trustees of Bellevue and Allied Hospitals, which was appointed by Mayor Low this week will assume control on February 1st of Bellevue, Fordham, Harlem, Gouverneur, and Emergency Hospitals. The functions of the Trustees are exactly the same as those which the Commissioner of Charities exercised over the hospitals before the revised charter went into effect. The nature of some of the general problems of administration has been made familiar to the public by the official or unofficial inquiries made from time to time. The treatment of the insane pending examination for admission to the State hospitals, the fees of the Examiners in Lunacy, the alleged hurried transfers of dying patients from other hospitals to Bellevue, the prompt issuing of notices of deaths, the alleged private "deals" between morgue attendants and outside undertakers, and the improvement of the old buildings are among them. The Trustees wish to have it made known that they have no appointments to make. The entire subordinate staff of the hospitals is protected by civil-service rules, and, moreover, there are no important vacancies to be filled.

Clergymen's Protest Against Changes in the Control of the Insane.—The following protest against the proposed change in the laws affecting the control of the insane has been sent to Gov. Odell:

"To the Governor of the State of New York:

"Sir: We, the undersigned, ministers of religion in the City of New York, unite in protesting against the proposed change of the laws respecting the care of the insane.

"It will centralize all administration, which experience and philosophy unite and declare should be in a democracy as far as possible localized; it will deprive the State of the voluntary, spontaneous service of a considerable number of men and women of large experience and philanthropic character; it will tend to lessen public interest in the charitable work of the State, which ought to be increased rather than lessened; and it will build up a service in the hospitals which will be liable to change with every change of political administration. In our opinion there are no corresponding advantages to counterbalance these evils. The authority now possessed by the central body, the Lunacy Commission, is entirely adequate to prevent local extravagance." This protest is signed by Bishop Potter and a dozen or more of the most prominent clergymen in the city.

Beneficial Work of Consumers' League.—The Consumers' League, of which Mrs. Nathan is the president, showed at its annual meeting, held on January 23d, that it had accomplished important reforms in the matter of sanitary regulations in the manufacture of garments and in the proper and healthful provisions for women employed in stores. The cordial coöperation of the new Board of Health was shown in the fact that Dr. Lederle was one of the speakers. He announced that he was prepared to enforce stringently the Mercantile Employees' Law which has existed since 1897, but which has been practically a dead letter through non-enforcement.

The "Bracket Bill" Denounced.—At a special meeting of the Eastern Medical Society of the City of New York, held at the Educational Alliance on January 24, 1902, Dr. Wm. S. Gottheil introduced a resolution emphatically protesting against the "Bracket Bill" to regulate and legalize the practice of Osteopathy. The resolution was seconded by Dr. A. E. Isaacs and the secretary was directed to send a copy of the resolution in full to the Judiciary Committee of the Senate.

Mount Sinai Hospital Work.—At the annual meeting of the Directors of Mount Sinai Hospital yesterday the old officers were reelected, with the addition of electing David Wile as Second Vice-President. The annual report showed that 6,369 people had applied at the hospital during the past year for treatment. There were 2,386 free patients and 600 pay patients admitted. Because of lack of room 430 people were refused admission. The number or accident cases admitted, which were not included in the foregoing, was 523. There was a daily average of 211 patients. The total number of patients since the institution was founded, in 1852, is 70,537. In the dispensary there were 83,955 consultations, and 80,064 prescriptions were filled. The daily average of consultations was 276. The total receipts for the year were $136,087 and the expenditures $138,087. The institution has $140,000 invested in bonds and mortgages; cash on hand $11,000 and has a building fund of $1,294,281. The Directors reported that they received $38,000 last October in the form of a donation from a gentleman and his sister who were not of the Hebrew faith. They gave the money in recognition of the non-sectarian work of the institution.

Wreck of the Manhattan Eye and Ear Hospital.—At the time of the explosion in the subway, on January

27th, there were sixty patients in the Manhattan Eye and Ear Hospital. This hospital is directly opposite the subway works, and is less than sixty feet from the mouth of the shaft. Almost every patient, nurse, and interne suffered from the shock or was cut by falling glass. Every window was shattered, the big skylight was smashed, and several doors were dislodged from their hinges. The patients were removed immediately from the hospital, and most of them sent to the Eye and Ear Infirmary. The hospital is untenable and will be abandoned entirely. Most of the plaster is shaken from the ceilings in the rooms nearest the street, and one patient, who lay in bed helpless, was covered from head to foot with the mass that fell from the walls about him.

Stony Wolde Sanatorium.—The first annual meeting of those interested in the establishment of the Stony Wolde Sanatorium was held on the morning of January 22d, at the residence of Mrs. George F. Shrady, 8 East Sixty-sixth Street. The President, Mrs. James E. Newcomb, read a report giving the results attained since the organization was founded, a year ago, to provide a sanatorium for the treatment of persons suffering from incipient tuberculosis who are unable for pecuniary reasons to procure proper climatic treatment. To carry on the work, ten auxiliary associations have been formed in New York City and suburbs which have a membership of 500. Through these auxiliaries more than $48,000 has been raised for the sanatorium which will be built in the near future. The Lake Kushaqua property where the institution will be situated was bought last September. It is in Franklin County at an elevation of 1,730 feet above the sea, and comprises about 1,200 acres.

Consumptive Hospital Plans.—The Trustees of the new State Tuberculosis Hospital held their annual meeting in Albany, on January 22d, and reelected the old officers, with Howard Townsend of New York as president. The Trustees called upon the Governor and paid their respects, after which they continued their meeting, devoting the day to the completion of plans for the hospital buildings and to the closing of the contracts for the purchase of the Raybrook site.

Cold Brooklyn Cars.—Dr. Joseph H. Raymond, Health Officer in charge of the Borough of Brooklyn, has written to the Health Office authorities in Manhattan to secure their aid in the adoption of an ordinance by the Aldermen that will be binding on the Brooklyn Rapid Transit Railroad Company in the matter of keeping their cars comfortably heated in cold weather. Dr. Raymond obtained on January 25th statistics of local car temperatures by assigning several of his sanitary inspectors to take trips over the various lines running between Newtown Creek and Coney Island and from the river front to Ridgewood. The inspectors found the temperature inside the cars ranging from 24 degrees, which is 8 degrees below freezing, to 40 degrees, which is 8 degrees above freezing. The highest temperature discovered in their travels at any time on any of the Brooklyn Rapid Transit cars was 54, and unofficial figuring on their returns developed an average temperature of about 34 degrees inside the cars, just 2 degrees above freezing. The Health Office inspectors, on their rounds, ascertained that the four lines of the Coney Island and Brooklyn Railroad, in which Police Commissioner John N. Partridge is said to be interested, and which are operated in competition with the Brooklyn Rapid Transit, provided an average temperature of over 52 for its patrons. No fault is found with this company.

To Protect Dairy Products.—A bill designed to prevent the adulteration of dairy products has been introduced by Senator Slater. It provides that no person shall add to any dairy product intended for human food or drink any substance containing formaldehyde or salicylic acid, or other harmful substance or substances, nor shall any product containing such acid be offered for sale.

School for Milk-Dealers.—Because he has received numerous complaints from retail milkmen with relation to the practices of the wholesalers, who, they claim, are busy adulterating the milk, Dr. Raymond of the Health Department in Brooklyn has decided to establish a school of instruction. He has applied to Borough President Swanstrom for the use of the Court of Special Sessions, and when that is given will have Dr. Williams, one of his assistants, demonstrate the use of the lactometer, so that the men themselves can detect any adulteration, and make specific complaint to the Department.

Warning Abattoir Owners.—Following up the principle that induced the Health Board to deny the application of Swift & Co., for permission to build an abattoir on Forty-fourth and Forty-fifth Streets, east of First Avenue, a letter has been sent by Commissioner Lederle to all the more important companies which have slaughter-houses in that section, notifying them of complaints of constant annoyance from existing slaughter-house plants and warning them that the condition of affairs complained of must be remedied before the advent of warm weather. Commissioner Lederle reminded them that they were acting under a permit revocable at the pleasure of the Board of Health, and that all such permts would be revoked whenever the Board of Health should become satisfied that conditions in operation in the slaughter-houses were prejudicial to the public health.

New York Academy of Medicine.—A stated meeting will be held Thursday, February 6th. The following program is anounced: Resolutions on Action of Treasury Department Declaring Pulmonary Tuberculosis a "Dangerous Contagious Disease," and Debarring Consumptive Aliens, Rich and Poor, from Entering the Country. Paper on the Phenomenon of Inhibition, Its Possibilities in Pathology, Especially in Its Relations to the Diseases of Myxedema and Exophthalmic Goiter, by S. J. Meltzer. Discussion will be taken part in by Drs. Charles L. Dana, Isaac Adler, M. Allen Starr, William H. Thomson, F. Peterson and William Hirsch.

Brooklyn Medical Society.—The following were elected officers of the Brooklyn Medical Society at the annual meeting held in January, 1902: President, William H. Haynes, M.D.; Vice-President, Malcolm E. Parrott, M.D.; Recording Secretary, Hugh E. Rogers, M.D.; Corresponding Secretary, Alfred Bell, M.D.; Treasurer, Albert H. Brundage, M.D.; Librarian, Lewis E. Meeker, M.D.

A Suit for Malpractice Against Dr. Thos. H. Manley.—In Part IX. of the New York Supreme Court, before Judge McLean, an action was brought by Selina Schneider against Dr. Manley, for alleged malpractice in the unnecessary removal of a joint of the thumb. After a trial lasting two days the jury deliberated five minutes and brought in a unanimous verdict for the defendant. The most unfortunate feature of the affair was the fact as brought out in the evidence, that the prosecution was instituted by the advice of a fellow practitioner.

PHILADELPHIA.

Smallpox Statistics.—For the week ending January 25th there were reported 90 new cases of smallpox

and 19 deaths, an increase of 8 cases and 3 deaths over those of the previous week. There are now 443 cases under treatment.

Increase in Typhoid Fever.—The cases of typhoid fever for the week ending January 25th were 117, an increase of 36 over the previous week. Much of the increase comes from West Philadelphia. The water supply is worse there than in any other section of the city.

Isolation Hospitals.—Dr. J. Madison Taylor, who has labored indefatigably toward securing pay hospitals for contagious diseases, in a recent statement to the public admits that the organization for that purpose has met with but little encouragement. He states that the rapidly-increasing number of well-to-do people who live in apartments or hotels makes an isolation hospital an absolute necessity and its realization a matter of time.

Patients Owed Him $50,000.—Dr. H. U. Umsted died January 25th at Phoenixville, where he had practised medicine for fifty-five years. At the time of his death he had $50,000 in uncollected bills on his books.

Officers of County Medical Society.—The annual election held January 15th resulted as follows: President, Dr. Thomas H. Fenton; Vice-Presidents, Drs. F. M. Perkins and J. Chalmers Da Costa; Secretary, Dr. Elwood R. Kirby; Assistant Secretary, Dr. William S. Wray; Treasurer, Dr. Collier L. Bower; Censor, Dr. W. Joseph Hearn.

Dairy and Food Division of the Department of Agriculture.—At a recent meeting of the State Board, Commissioner Cope presented a statement of the work done in 1901. The number of samples of oleomargerine, butter, cheese, milk, etc., analyzed was 3,019. Of the suits brought against dealers there were 1,159 oleo cases and 192 of other products.

Philadelphia County Medical Society.—At the meeting held January 22d, the guest of the evening was Major Louis A. La Garde, Surgeon United States Army. Dr. La Garde gave an instructive talk on "Gunshot Wounds of the Knee by Reduced Caliber Projectiles." Sixty-two cases were reported. The mortality-rates were compared and attention called to the difference in the number of amputations. Many skiagraphs were shown, an interesting one being that of a soldier shot by a Filipino, the ball entering behind the ear and lodging in the tongue. This is the fifth case of the kind on record. In discussing the subject Dr. W. L. Rodman said that in wounds met with in civil practice he seldom amputated unless there was extensive injury to the vessels or nerves.

South Branch County Medical Society.—The meeting of January 24th was devoted to a symposium on tuberculosis. Dr. P. S. Donnellan spoke of laryngeal tuberculosis and its treatment. He stated that the physician should take a more hopeful view of these cases than is generally held. A strictly routine treatment should be avoided. For the ulcers which develop there is nothing better than lactic acid. Dr. J. R. Young spoke of the diagnosis and treatment of tubercular arthritis. Dr. Chas. P. Noble spoke of abdominal tuberculosis. Dr. A. O. J. Kelly spoke of the diagnosis of pulmonary tuberculosis. He mentioned four forms in which tuberculosis first manifests itself, the pleuritic, the hemoptytic, the bronchitic, and the insidious. The early diagnosis of the latter is of great importance. Symptoms suggesting this condition are gastric disturbances, progressive weakness, and a peculiar pallor. Changes of temperature are more common in early involvement than is generally supposed. In suspected cases the temperature should be taken every two hours for one or two weeks. The acceleration of the heart's action or its instability, especially under nervous excitement, is another point to notice carefully. Tubercle bacilli are not found in the sputum in the very early stages, but they are present almost as soon as demonstrable signs occur. As to tuberculin, Dr. Kelly finds it especially valuable as an aid to diagnosis in patients who have recently recovered from an attack of pleurisy. He has used it in many cases in hospital practice and the reaction has aided in making an early diagnosis of tuberculosis.

Vaccine Examinations by State Board of Health.—Microscopical and bacteriological examination of the vaccine lymphs on sale in Philadelphia have been made by the State Board of Health. No virulent bacteria were found. The number of bacteria in each varied greatly in the different makes of virus, ranging from 36 to 801 in dry points, from 24 to 63 in glycerinated points and from 2 to 11 in tube virus. Attention is called to the notable decrease in the glycerinated tubes as compared to the glycerinated and dry points. In general the quality of lymph shows a marked improvement in the number of bacteria over the same lymphs as tested in 1896 by the same bacteriologist.

Philadelphia Pediatric Society.—The following officers have been elected for the ensuing year: President, Dr. S. McC. Hamill; Vice-Presidents, Drs. D. J. M. Miller, J. H. Jopson, A. A. Eshner; Treasurer, Dr. H. B. Carpenter; Secretary, Dr. C. H. Weber; Recorder, Dr. D. L. Edsall.

CHICAGO.

Warden Healy Stops Operation.—An operation being performed upon a woman in the general clinic at the Cook County Hospital, January 23d, was stopped by Warden Healy, and the patient removed to a private operating-room, away from the view of medical students. The Warden recently gave an order that women should not be publicly exposed while undergoing perineal and uterine operations, and he intends to enforce it.

Chicago Laryngological and Climatological Society.—At a meeting of this Society, held January 21st, the following officers were elected: President, Dr. M. R. Brown; Secretary-Treasurer, Dr. John Rhodes; Members of the Council, Drs. William E. Casselberry, Edward T. Dickerman, and Dr. Otto L. Freer.

To Transfer Insane.—The superintendents of the State Hospitals for the Insane held a meeting at Springfield January 23d to confer with the State Board of Charities with reference to the transfer of inmates of their institutions to the Asylum for the Incurable Insane at Peoria, which will be opened February 20th. The employees' quarters, and the light, heat and storage plants of the Peoria asylum are sufficient to allow the accommodation of 3,000 patients, but the cottages in course of construction will not hold more than 700, and only 300 can be cared for at the opening. Under the law the incurable insane now in other State Hospitals must first be transferred to the new institution. The 300 to be transferred will be taken from the hospitals at Kankakee, Elgin and Jacksonville—100 from each—and special arrangements will be made with the railroad companies for the transfer. In selecting patients for transfer from their institutions the superintendents will apportion them as nearly as possible according to the ratio of quarters assigned the counties in their respective districts. Upon this basis 59 Cook County patients from Elgin and 65 from Kankakee will be sent to Peoria, thus giving the county immediate room in Elgin and Kankakee for 124 inmates who are at Dunning. As fast as the capacity is in-

creased in Peoria transfers will be made from the hospitals at Watertown and Anna.

Scarlet Fever.—It is impossible for the Department of Health to maintain isolation and to enforce preventive measures in every household, probably a thousand, in which there is scarlet fever at the present time. This disease had increased 35 per cent. during the first eighteen days of January over the last eighteen days of December, while diphtheria has increased less than 10 per cent. in the same period. The figures of mortality from the two diseases are even more striking—34 per cent. decrease in the deaths from diphtheria and 25 per cent. increase in the number of scarlet-fever deaths. Unfortunately there is as yet no antitoxin for the latter disease, and only great care in preventing contact with cases until all signs of scaling have disappeared and then thorough disinfection of person, clothing and sickroom can be relied on to restrict its spread.

Very Little Smallpox.—The Health Department is thus far entirely satisfied with its smallpox record. There have been but 18 cases this month and only 30 all told since August 12, 1901. The fact that no case has occurred among hotel and restaurant people, employees of stores and business places and others brought into personal contact with visitors speaks volumes for the intelligent appreciation of the protection afforded by modern methods of vaccination in Chicago.

Chicago Neurological Society.—At a recent meeting of the Chicago Neurological Society, Dr. H. H. Donaldson gave the description of a new chart drawn by Mr. Davis to represent the areas of the gray and white matter in the human spinal cord at the level of each spinal nerve. The base line represents the average length of the adult cord and is divided into thirty-one parts, each having the length of the corresponding segment. The data for the areas of the cross-sections were taken from Stilling's tables. The new features in this chart are the division of the base line into lengths equal to those of the corresponding segments, and the use, for the areas of the cross-sections, of data derived from the measurement of the adult cord. The diagram at present found in the text-books is based on Stilling's measurements of the cord of a five-year-old child; while the base line is divided into equal intervals for the segments, thus failing to give the measurements for the adult cord, and disturbing the relations of the curve which is presented. Dr. Ronaldson next presented some results obtained by Mr. Hatai from his studies on the spinal ganglion of the white rat during the growing period. Four rats were used, their body weights being 10, 24, 63 and 167 grams respectively. In each rat the number of cells in the ganglion and the number of fibers in the dorsal nerve-roots of the sixth cranial, fourth thoracic, and second lumbar was determined. On comparing these numbers thus obtained it was possible to draw the following conclusions: (1) In the spinal ganglia the number of cell-bodies is constant between birth and maturity. There is, of course, some individual variation in this number. (2) The fibers of the dorsal nerve-roots are more than twice as numerous in the 167-gram rat as in the 10-gram rat, and the intermediate weights show intermediate numbers in the roots. (3) Since this is the case, it follows that the ratio between the number of cells in the ganglia, as compared with the number of fibers in the dorsal nerve-roots, steadily decreases. In the youngest stage there may be as many as eleven cells in the ganglion for each fiber in the dorsal nerve-root, while in the case of the most developed nerve there are still 2.7 cells for each fiber. It appears that the new fibers are formed by the outgrowths of cells present in the ganglion from the earliest stage. Studies on the general activity of the rat show that they are most active when weighing from 25 to 35 grams, and, therefore, at a time when the number of fibers in the dorsal nerve-roots is still very incomplete.

Health of Chicago.—Doctors are unusually busy and the death-rate still declines. It is not meant, however, to flatter the profession unduly by implying that the latter is the result solely of the former. There is a vast amount of sickness in the city; but, fortunately, the prevalent maladies—except scarlet fever—are of a mild type. The 480 deaths from all causes recorded last week give an annual rate of only 13.73 per thousand of population, a reduction of about seven per cent. from the rate of the previous week and of 3.8 per cent. from that of the corresponding week last year. There has been a notable increase in the demands upon the main and sublaboratories for bacterial examinations since the appeal was made for a more general resort to these means of determining the character of obscure symptoms, especially those of influenza. Fully 60 per cent. of all examinations reveal the presence of the bacillus of this disease, either pure or associated with other germs, chiefly those of pneumonia. But the number of examinations called for is still wholly disproportionate to the prevalence of the disease. The Department renews its warning as to scarlet fever and the duty of parents to aid in preventing its spread by proper isolation of their own children when afflicted and to guard the well ones against association or contact with the sick. A scarlet-fever case is dangerous until all "scaling" has entirely disappeared—usually about six weeks after it begins. Physicans may materially assist by advising parents on this point and by discontinuing premature requests for disinfection. Disinfection does not disinfect while the child is still scaling. Only eight new cases of smallpox were discovered during the week—two imported from Wisconsin and both sent to the hospital in advanced eruptive stage; three were contracted from previous city cases and the origin of the remaining two is as yet unknown. Fortunately, the occupants of the hospital are properly protected by recent vaccination and no apprehension is felt from the cases that stray in or are sent there. Of the eight cases five had never been vaccinated at all and the remaining three, aged twenty-nine, thirty and fifty years, respectively, had only imperfect traces of vaccination in childhood, never repeated. The discovery on the 19th ult. of three cases of the disease in Highland Park, twenty-three miles north of the city, and one at Glencoe, four miles south of the Park, led Chief Medical Inspector Spalding to make a visit of investigation. He traced the cases unmistakably to a visitor from Ripon, Wis., just recovering from so-called "chicken-pox." None had been vaccinated. By Dr. Spalding's advice, general vaccination and revaccination are being enforced in both localites. The infection centers are steadily getting nearer Chicago and no unprotected person in the city can afford to take any chances. Again: Get vaccinated. The cleansing effect upon the atmosphere of the snowfall of January 21st is shown by the following: On the 18th ult. shallow glass dishes containing the usual preparation favorable to the growth of atmospheric germs were exposed to the air for three minutes in ten different localities within the half-mile bounded by South Water, State and Adams Streets and Fifth Avenue. After seventy-two hours' incubation these showed an average of 630 colonies of growing germs—the greatest number, 1,050, being found at the northeast corner of Dearborn and Washington Streets, a few feet above the street level; the least, 330 in the south court between the City Hall

and the County Building; and the next fewest, 335 on the roof of the City Hall, about 130 feet above street level. On the 21st ult. snow fell to the equivalent of 0.28 of an inch of rain and the experiment was repeated on the 22d. The average colonies from these latter exposures numbered 66, ranging from 19, at the southeast corner of La Salle and South Water Streets, to 180 at the southwest corner of Washington and Fifth Avennes. The amosphere was nearly 90 per cent. purer on Wednesday after the snowfall than it was before. Chicago needs snow; the records of the Weather Bureau fail to show a period of dryness equal to that which has now been continuous since the middle of last October. The public water supply has averaged fairly good during the week, but it is still to be regarded with suspicion as a drink for the young and non-immune to typhoid. Unlike the presumption of the law that a man is innocent until proved guilty, hydrant water must be considered dangerous until proved to be safe. The Department's warnings too often reach the public after the event. Boil all water intended to be drunk by the young, at least.

CANADA.

The Toronto Western Hospital.—This hospital has arranged tents on its lawns so as to accommodate fifteen consumptives.

A Health Officer Contracts Smallpox.—Dr. Hamilton, the local Medical Health Officer of Cornwall, Ont., has contracted smallpox while in the discharge of his duties.

McGill University and Newfoundland.—Speaking at the banquet of the New England Graduates' Society of McGill University on the evening of January 23d, at Boston, Dr. Petersen, the Principal of McGill, referred to the excellent work being done by an affiliated college at Vancouver, B. C., and to the prospects of a similar institution being established in Newfoundland.

Appointments.—Dr. S. B. Jones has been appointed assistant in clinical laboratory work at the Royal Victoria Hospital, Montreal. Dr. Lachapelle has retired from the mayoralty contest in Montreal. Dr. John Hayes has been elected mayor of Richmond, Quebec.

New Medical Buildings.—Much progress has been made in the arrangements for the new medical buildings which are to be erected for the growing requirements of the Medical Faculty of Toronto University. It has been agreed that the Arts Faculty will bear two-fifths of the cost and the Medical Faculty the balance. The new building will be situated in the Queen's Park near the other buildings of the University. This will be the final act in centralization as the old building of the medical faculty was distant a mile from the University.

Cottage Hospitals for the Northwest.—The idea originated by Her Excellency, the Countess of Minto, of establishing cottage hospitals in the sparsely-settled districts of the Canadian Northwest as memorials to our late beloved Queen, is taking shape, and already two are in course of erection and a third is under consideration. The women of the Dominion are coöperating with Her Excellency and collecting books for 25, 50 cents and $1.00 are being issued.

To Reform the Ontario Medical Council.—Dr. Jessop, one of the members of the Legislature, has introduced a bill seeking to reform the Ontario Medical Council. The Council as at present organized consists of thirty members, five of whom represent the Homeopathic practitioners of the province, eight the non-elected appointees of four medical colleges, connected with Toronto University, Trinity University, Queen's University and the Western University at London. The other seventeen are elected by the general practitioners of the Province. Dr. Jessop claims that there are only forty Homeopathic practitioners in the Province and they have five representatives, whereas the general or regular profession numbers 250 for each representative. His bill proposes to abolish the Homeopathic and the appointed representatives on the Council and to have the entire thirty members elected by the general profession throughout the province.

Quarantine on the Pacific Coast.—A new quarantine order has been issued from the office of the Director-General of Public Health at Ottawa and it refers to a change in the quarantine arrangements affecting the Empress line of steamers plying between Vancouver and the Far East. Under the new order all steamers will be obliged to touch at the Williams Head station only when contagious diseases have developed on the voyage. Before, every steamer was obliged to anchor for four or five hours whether contagious diseases were on board or not.

A New Women's Hospital for Toronto.—For two years the corporation of the Women's Medical College has been endeavoring to raise the funds for a hospital in connection with the college, but so far the work has been educational and organization for the purposes of raising those funds and a good foundation has been laid for the collection thereof. Dr. Minerva Greenaway presented the report of the dispensary in connection with the college. This dispensary is nearing the close of the fourth year of its establishment and during that time there have been registered 9,000 patients, by far the larger number of these being women. Thus, the need of such a hospital in connection with the work of the Women's Medical seems to be emphasized.

Royal Victoria Hospital, Montreal.—The annual meeting of the Governors of this institution was held during the past week when it was stated that plans are now being prepared for an extension to the hospital with provision for an operating-room for the gynecological department. During the past year 2,579 patients were admitted to the hospital and of this number 1,254 were free patients. In January, 1901, there were 194 patients in the institution. The death-rate for the year has been 4.42 per cent. In the out-door departments the total number of patients treated was 3,601. The income for the year amounted to $130,738.40; the expenditure, $112,280.20.

New Appointments.—The following have recently been appointed on the staff of the Royal Victoria Hospital, Montreal: Dr. A. G. Nichols, Assistant Pathologist; Dr. G. P. Girdwood, Director of the Medical Electrical Department of the hospital; Drs. H. B. Cushing and F. M. Fry, Clinical Assistants in Medicine; Drs. A. Shirres and A. A. Robertson, Clinical Assistants in Neurology; Dr. E. A. Archibald, Clinical Assistant in Surgery; Dr. F. W. Harvey, Clinical Assistant in Ophthalmology; Dr. W. H. Jamieson, Clinical Assistant in Laryngology; Dr. H. B. Yates, Assistant in Bacteriology; Dr. A. A. Bruere, Director of the Clinical Laboratory; Dr. H. B. Cushing, Medical Registrar.

GENERAL.

The Medical Director of the Louisiana Purchase Exposition.—The post of Medical Director of the St. Louis World's Fair has been filled by the appointment of Dr. Leonidas H. Laidley. Dr. Laidley is a man of thirty-five, a successful practitioner and a medical teacher in St. Louis. He is professor of gynecology and pelvic surgery in the Marion Sims-Beaumont College of Medicine. In addition, he is surgeon to the

Protestant Hospital, consulting surgeon to the Female Hospital, and a leading member of the St. Louis Medical Society and other medical organizations. He was a delegate to the British Congress in 1883, and while abroad visited the hospitals of the principal cities. When the Louisiana Purchase Exposition Company was organized he was one of the incorporators.

Temporary Injunction Against Smallpox Hospital.—Vice-Chancellor Emery has granted a temporary injunction restraining the Mayor and Council of East Orange from receiving patients at the smallpox hospital that is being built on Clinton Street in that city.

Smallpox in Princeton.—One student in Princeton University has smallpox. The authorities are taking every precaution to prevent the spread of the disease among the students, who are being vaccinated as rapidly as the work can be done. There are four other cases of smallpox among the residents of the town.

More Money for Lakeside Hospital in Cleveland.—Samuel Mather, who has given thousands of dollars to Lakeside Hospital, has nearly completed the arrangements for a gift of about $40,000, which is offered to the Hospital Board under certain conditions, the compliance with which will be a small matter.

The St. Louis Medical Society of Missouri.—On January 25th the meeting of this Society was opened with a paper on "Ophthalmoscopic Examinations in Nephritis" by Dr. Meyer Wiener. This was followed by a discussion by Drs. Carl Barck, Dr. W. A. Shoemaker, and Dr. Hugo Summa. A paper on "Ear Complications and Sequelæ of Influenza" was read by Dr. M. A. Goldstein and discussed by Drs. J. B. Shapleigh, L. Caplan, and Dr. F. M. Rumbold.

Medical Society of the District of Columbia.—At a recent meeting of the Medical Society of the District of Columbia the following officers were elected for the present year: President, Dr. Samuel S. Adams; Vice-Presidents, Drs. J. W. Chappell and A. R. Shands; Treasurer, Dr. C. W. Franzoni; Corresponding Secretary, Dr. Thomas C. Smith; Recording Secretary, Dr. Francis P. Morgan; Librarian, Dr. Edwin L. Morgan.

Prophylaxis of Syphilis in France.—A committee has been formed for the study of questions relating to the prophylaxis of syphilis and venereal diseases in France, and also to investigate the frequence of these maladies, institutions for their treatment, and the best means, legislative and administrative, to prevent their propagation.

Italian Surgical Congress.—The next Congress of the Italian Surgical Society will be held in Rome during the month of March.

Statistics of Rabies.—Since 1886, 26,165 people who had been bitten by mad dogs have been treated at the Pasteur Institute in Paris. Of this number, but 107 died.

The Transvaal War and Insanity.—It has been noticed in England that soldiers returned from South Africa suffering from extreme nervous excitement and insomnia. The increase in the number of insane in 1901 is attributed largely to the Transvaal war.

Physicians and Apothecaries.—In Germany there is one physician to 2,058 people, but only one apothecary to 10,363.

How They Regulate Tunnel Air in Paris.—The Paris City Council has had analyses made of the air in the tunnel of the new rapid-transit railroad, and has found an excess of carbonic acid gas. Consequently, it has summoned the management of the railroad to appear before it and show how it is going to purify the air.

Smallpox Epidemic in London.—Sir James Crichton Browne, the eminent English physician and specialist in mental diseases, dealt with the prevailing smallpox epidemic in London, the other day, in an address, which he delivered before the British Sanitary-Inspectors' Association. He said that, although the visitation was cause for anxiety, yet there were now means for combating it, which did not exist formerly, and he dwelt particularly upon the protective power of vaccination, when properly performed. He had become a convert, he admitted, to the law which did not enforce the operation in the face of conscientious objections, but he expressed the conviction that persons who refused to be vaccinated ought to be subjected to additional obligations. "The avoidance of vaccination," he said, "should be made appreciably more troublesome and expensive than compliance with it, since, for one child unvaccinated, owing to conscientious objection, there were at least a hundred or so disabled by the ignorance, indolence, or carelessness of their parents." He approved of the suggestion of a system of international notification of smallpox, and admitted that sanitation was a factor in preventing its spread. But when all was said and done, he declared, there was no substitute for vaccination in relation to smallpox, though it might have its auxiliaries.

Prof. Virchow Growing Weaker.—The condition of Prof. Rudolf Virchow, the eminent pathologist, who injured his thigh by a fall when alighting from a street car in the early part of this month, causes apprehension among his physicians. Prof. Virchow is growing weaker as a result of his accident.

Obituary.—Dr. Charles George Sproull died on January 25th, at Dr. William T. Bull's private sanitarium at 33 East Thirty-third Street, New York. He was stricken with paralysis of the intestines last Wednesday and was removed from his apartments in the Beverwyck in West Twenty-seventh Street. He failed rapidly and early on Saturday morning it was decided that an operation was necessary. Dr. Sproull was thirty-four years old. He was a graduate of Princeton University and of the University of New York. He was for two years house physician of Bellevue Hospital.

Dr. S. Seabury Jones died from pneumonia at his home, No. 712 Madison Avenue, on January 23rd, after an illness of three days. Dr. Jones, who was fifty-five years old, was born in Oyster Bay, Long Island, and had been practising medicine in New York since 1869. He was a graduate of the New York University. He was a member of the Academy of Medicine, the Manhattan Medical and Surgical Society, and the Lenox Society. He was consulting physician at both the Workhouse and Almshouse.

Dr. Francis Clemens, Jr., of Paoli, Pa., was drowned on January 22d in Ridley Creek, Westchester, Pa. In company with his brother he attempted to cross the stream, which had been swollen by heavy rains. His carriage was overturned and Dr. Clemens was swept away. His body has not yet been recovered. His brother was rescued by a farmer who heard his cries for assistance.

Dr. Andrew J. Hines died January 21st, at Doylestown, Pa., at the age of seventy-six. He graduated from Jefferson Medical College in 1853, and was the oldest practising physician in Doylestown.

Dr. Lachlan Tyler, fifty years old, of No. 303 West One Hundred and Twentieth Street, New York, died on Sunday, January 26th, at the Post-Graduate Hospital, of appendicitis. Dr. Tyler was the son of President John Tyler, tenth President of the United States, and for many years was connected with the Depart-

ment of Health of New York. A brother is now President of William and Mary College, at which both Dr. Tyler and his father were educated.

Dr. Dominick George Bodkin died on Sunday night, January 26th, at his home, No. 290 Clinton Avenue, Brooklyn, after a long illness. He was well known as a physician in Brooklyn, where he had practised for thirty-five years. He was born in County Galway, Ireland, in 1833, coming to this country with his parents when he was nine years old. He served in the Civil War as an assistant surgeon in the corps commanded by Gen. Canby. He was a delegate to the International Medical Congress held in Russia some years ago. He was also a member of the New York State Medical Association, the Kings County Medical Society, the Mutual Aid Physicians' Association, the Columbian Club, the Catholic Benevolent Legion, and other organizations. He was also for many years on the medical staff of St. Mary's Hospital.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, January 18, 1902.

A GREAT SCHEME OF CANCER RESEARCH—THE FORTHCOMING ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION—THE MIDWIVES QUESTION.

Since the dispatch of my last letter the movement against cancer to which reference was there made has taken shape. The initiation of the project is attributed to Mr. Henry Morris, Senior Surgeon to Middlesex Hospital, who is said to have perfected a scheme for establishing a fund to provide for the prosecution of research in the matter of cancer. According to an evidently inspired communication which appeared on January 16th in an evening newspaper, the objects of the fund are to provide, equip, maintain, and endow laboratories to be devoted exclusively to cancer research; to endow a directorship of research; to provide paid assistants to the director, research scholarships, and grants in aid of cancer research within the United Kingdom, etc.; to assist in the development of the cancer department of Middlesex Hospital and of any other hospital where a special cancer research department may be provided; and generally to provide means for systematic investigation into the causes, prevention, and treatment of cancer. The promoters of the scheme propose (should the object of the fund be attained by the discovery of the cause and nature of cancer, and of an effective method of treatment) that the trustees, with the consent of the Royal Colleges, shall be empowered to utilize the income of the fund either for equipping such hospitals as they may select with any appliances which may be necessary for such treatment, or for forwarding in similar manner research into other diseases. It is further proposed that the general committee shall include the president and two censors (for the time being) of the Royal College of Physicians of London, the president and two vice-presidents of the Royal College of Surgeons of England, the members of the laboratories committee of the Royal Colleges of Physicians and Surgeons, and one member to be nominated by the Local Government Board. An influential board will be appointed to advise the general committee as to the best means to be adopted in promoting the inquiry and in allocating money. It is estimated that the annual expenditure from the fund will be some £2,250, which will include grants for research, salaries, etc. Among those who have expressed themselves as favorable to the scheme are Lord Lister, Sir William Broadbent, the late Sir William MacCormac, Bart, Sir R. Douglas Powell, Sir Thomas Smith, and Sir John Williams.

From this it will be seen that I was strictly correct in stating that the scheme had taken shape. But it still wants substance, for though Mr. Henry Morris may have "perfected a scheme" for establishing a fund, no fund yet exists, nor does the pious founder show any disposition to come forward. As I told you last week, the Colleges of Physicians and Surgeons, though they have the matter under consideration, have not yet decided to take any action. It will be noticed that in the "officious" communication of which the gist is given above the Royal Colleges are mentioned only in a casual way, while prominence is given to the Middlesex Hospital as the place in which the research may most advantageously be carried out. This indicates that the scheme is, in its "first intention," designed for the greater glory of the Middlesex Hospital of the staff of which the initiator is a distinguished ornament. Other hospitals are not unnaturally urging their claims to participate in any endowment of cancer research that may be secured, and there is thus a serious risk that a scheme big with promise of benefit to mankind may be wrecked by the jealousy of rival institutions. The right solution of the difficulty would be to place the funds at the disposal of the Royal Colleges for the creation of a central laboratory with a special staff working under their control. As a matter of fact the Middlesex Hospital has perhaps less claim than many others to endowment for the particular purpose intended; for although it has wards devoted to sufferers from cancer and a special department for the pathological investigation of cancer, little or no new light on the subject has come therefrom.

The British Medical Association is to hold its next annual meeting in Manchester under the presidency of Mr. Walter Whitehead, a surgeon whose name is doubtless familiar to many on your side of the Atlantic in connection with his operative procedures for hemorrhoids, cancer of the tongue, etc. The prospects of a successful meeting have been seriously jeopardized by the foolish arrogance with which the representatives of Manchester on the Council of the Association endeavored to make that body an instrument for the pursuance of local quarrels and the satisfaction of personal spite. They claimed the right to determine what addresses should be delivered and to select the orators. For the sake of peace probably the matter was left in their hands, and accordingly they decided that the customary Address in Obstetrics should have no place in the program. The pretext alleged for this innovation was that more time would thus be available for the transaction of business. The real motive, however, was speedily apparent. Professor Japp Sinclair, who occupies with great distinction the chair of obstetrics and gynecology in the Victoria University, Manchester, had made himself personally obnoxious to some uncompromising opponents of the legal recognition of midwives, and they saw in the annual meeting an opportunity of revenge. Among the representatives of Manchester on the Council are some of the fiery spirits aforesaid, but though active in "political" agitation they cannot be regarded as in any sense representative of the profession in Manchester. It is, indeed, one of the weak points in the Association that neither in London nor elsewhere do the leading men in the profession take an active part in the conduct of its affairs. Hence a set of nonentities of no importance even locally may cause mischief by ill-judged decisions on questions with which they cannot be trusted to deal. In the present instance the gravest dissatisfaction was excited in high professional quarters in Manchester by the attempt to boycott Professor

Sinclair. His colleagues at once took up his quarrel as their own and determined to have nothing to do with the annual meeting. This would have made the gathering simply a *fiasco*. The President-Elect, Mr. Walter Whitehead, found himself in a difficult position, for he had to make up his mind to throw in his lot either with his colleagues of the University or with the Association. He appealed to the Council to extricate him by throwing over the Manchester representatives who had caused the mischief, and this was finally done.

The midwives question which is at the bottom of the whole thing is likely to come before Parliament in the course of the next few months. The profession has been led into a false position by a small band of intransigents who profess to speak in its name, and the public which is beginning to recognize the necessity of legislation is certain sooner or later to insist on the matter being dealt with regardless of interested opposition.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-Sixth Annual Meeting, Held at Albany, January 28, 29 and 30, 1902.

FIRST DAY—JANUARY 28TH.

Inaugural Address.—The President, Dr. Henry L. Elsner of Syracuse reviewed the recent progress of medicine and surgery in his inaugural address. He called attention to the eminent desirability of having harmonious action in all public matters among the medical profession of New York State. The existence of two State medical organizations interferes with this and he suggested that steps should be taken looking toward reunion. As the result of this a resolution was offered empowering the President to appoint a committee to consider and report to the Society as to the advisability of having the President appoint a committee of conference to meet a similar committee to be appointed by the New York State Medical Association to discuss the ways and means of union between the two medical organizations of the State.

Treatment of Goiter.—Dr. Thomas Scully of Rome opened the scientific program with a discussion of the medical and surgical aspects of the treatment of goiter. He considers that parenchymatous enlargements of the thyroid gland may in early stages at times be relieved by internal administration of the iodides. Sometimes injections of iodine or of carbolic acid directly into the substance of the gland give good results. For cystic conditions surgical interference will always be needed. It is well not to delay radical surgical intervention so long that extensive adhesions to the important structures of the neck have taken place. Dr. Scully has found that local anesthesia by means of cocaine is very effective in these cases. The operation as a rule requires less time and there is less subsequent pain and no vomiting to interfere with postoperative conditions and make the patient very uncomfortable.

The Professional Midwife.—Dr. M. J. Lewi of New York said that last year, while some 80,000 births were reported by physicians in New York City, over 30,000 were reported by midwives. This represents about the proportion of obstetrical cases that go to these two classes of attendants in recent years. The problem is a very large one. As the result of the work of ignorant midwives there are blind children crowding the blind asylums and maimed women crowding the dispensaries. As the result of the work of criminal midwives there are thousands of abortions being procured and the system of child-farming, so fatal to the lives of infants, is perpetuated. Something should be done by the representatives of the profession of New York State to prevent these evils. The general public rightly looks to the medical societies in this matter. There is need for the legal regulation of midwives. There should be a law requiring all midwives to be registered and permitting only those to register who have passed a suitable examination and who have attended at least a dozen cases of labor under proper direction. The Legislation Committee of the State Medical Society should be instructed to draw up a bill for this purpose and the influence of this Society should be exerted to secure its passage.

Legal Registration.—Dr. Abraham Jacobi of New York said that the legal regulation of the practice of midwifery by women who are not physicians is a crying need of the times. There will always in large cities and also in country places be need of the services of midwives, and women will employ them. In order properly to control them legislation looking to examination and registration is required. Midwives are not the only ones who perform abortions, and, if members of the profession do so, how much more these irregulars? It is useless to hope for ideal results, and the practical conditions demand that the midwife shall be acknowledged and her proper training encouraged. A resolution was then adopted instructing the Legislative Committee to draw up and present a bill to the Legislature on this subject, embodying the ideas of this discussion.

Human Asymmetry.—Dr. W. S. Ely of Rochester said that there is no absolute symmetry in Nature. French gardeners in attempting to make trees formally symmetrical made them grotesque. In infancy human beings are most symmetrical. Growth, exercise and work soon increase the slight asymmetry always present. Even the skull is asymmetrical and there may be enough difference in the two sides to make fractures difficult of recognition. The general asymmetry of the body is increased by the training for righthandedness. This is unfortunate, as it gives a proper development to only one-half of the body. Dr. Ely suggests that family doctors should discourage the exclusive training of one side of the body only. Some of the spinal curvature so noticeably on the increase in recent years is due to this mistaken notion. The lack of symmetrical training in the past has deprived the majority of mankind of certain faculties and dexterity that would normally have been their due.

Sarcoma of Tonsil.—Dr. Arthur G. Root of Albany described an operation for a serious case of this condition. The patient was a young man, twenty-three years of age, who came to him with a firm enlargement of the tonsil. After an attack of pneumonia an abscess had formed in this tonsil which had to be incised several times. The scar of these incisions had left distinct indurations. Though only the tonsil was apparently involved within the mouth, the external lymphatics of the neck were noticeably enlarged. An intra-oral operation was out of the question, so an incision was made all along the sternocleido muscle almost to the clavicle. All enlarged glands were removed. A ligature was passed around the common carotid about an inch below its division, to be tied if subsequent bleeding should be severe. It was found necessary to tie this ligature before all of the growth could be removed. The patient sank so much after this that the conclusion of the operation was delayed. The wound was packed and the patient responded well to stimulation. The operation was completed very thor-

oughly, all diseased tissue being removed so far as it could be recognized. After five months, however, recurrence took place and the patient died.

Double Carotid Ligature.—Dr. Dawbarn of New York said that he has paid special attention for some eight years to inoperable malignant growths in the pharynx and larynx. The most successful treatment seems to be the extirpation of both external carotids with all their branches. About forty of these operations have been done by Dr. Dawbarn himself and some dozen other surgeons. They give the best results and are not as dangerous as might be expected. It seems that the profession should try this method of treatment in these cases, which are now so commonly looked upon as inevitably fatal.

Dr. Jacobson of Syracuse said that if taken early it is sometimes possible to cure these patients by simple removal with the cautery. He reported the case of a patient thus treated twelve years ago in which there has been no recurrence.

Pelvic Suppuration.—Dr. Chas. P. Noble of Philadelphia presented the results of his various methods of treatment of pelvic suppuration during the last fourteen years. In all there were 200 patients having suppurative conditions. Of these 146 were operated on by abdominal incision. Of the remaining 64 most were operated on by vaginal incision with drainage. This last method has given much better results than any former methods of treatment. The mortality in the treatment of pelvic suppuration was over 16 per cent. before 1895; since that year the mortality has been only slightly more than 6 per cent. and only 4 per cent. if to the operative cases are added those of simple drainage for pelvic suppuration. Other disadvantages besides the cardinal one of greater mortality have also been obviated. Hernia in those operated upon by the abdominal method occurred in over 10 per cent. of all cases. Now it occurs in less than 1 per cent. of all cases. The modern technic of using absorbable catgut instead of silk does away with the danger of subsequent fistulæ, so annoying a sequela in the old days. The vaginal method also removes almost completely the danger of subsequent adhesions from which patients suffered so much and for the relief of which even serious secondary operations had to be performed.

Abandon Radical Abdominal Operation.—Dr. Noble is of the opinion that the radical operation upon the uterus and adnexa through an abdominal incision should be abandoned. Its mortality is apt to be high. If drainage is employed hernia is practically inevitable and adhesions are almost sure to occur, later to be a source of danger and discomfort. On the other hand, by the vaginal route these disadvantages are minimized. In puerperal cases lives are saved and even the ovaries may be preserved for subsequent function, though they would surely be sacrificed by abdominal operation. If by chance the abdomen should be opened and a purulent condition unexpectedly found the vaginal route should be used, the assistant closing up the abdominal incision.

Drainage in Abdominal Operations.—Drainage should not be used in abdominal operations unless it is feared that a hollow viscus has been injured. Even if a pus sac should be ruptured within the abdominal cavity drainage is inadvisable. The peritoneum can take care of infectious material better without drainage than with it. The continuous irritation of a leaking intestine, ureter or bladder, however, soon overcomes the normal resistive vitality. It might seem that simple drainage for pelvic suppuration is a reversion to the old days when simple evacuation of the pus was the only purpose attempted. As a matter of fact the present drainage represents a distinct advance. Instead of the halting-in-the-dark methods of the early days of gynecology, surgeons now know exactly the indications and realize how far they may go with the hope of ultimate success. In the old days patients were relieved for the time being, but very seldom entirely cured. With the modern drainage it is almost the exception not to have permanent relief. The majority of patients do not need any subsequent operative treatment and have very little discomfort. The drainage operation is truly conservative. It saves not only life, but organs. Ovaries are not sacrificed and often retain their function. Dr. Noble has seen six pregnancies occur in cases in which, according to old methods radical removal of organ would surely have been the indication.

True Conservative Gynecology.—Dr. McDonald of Albany said that there was little to discuss in Dr. Noble's paper, because there was little to criticize or disagree with. Undoubtedly the vaginal route has proved an eminently conservative method. False conservatism may, however, asesrt itself to the patient's detriment. When pus tubes are present, for instance, and are to be removed hysterectomy should be done also. Dr. McDonald has seen cases in which neglect of this precaution has necessitated secondary operation. This is not the sacrifice of a healthy organ, for usually the seeds of infection are also in the uterus, though they may not be manifest.

The Sideroscope.—Dr. Thos. R. Pooley of New York read a paper describing the development of this instrument from his original invention. He found by experiments with a suspended magnetized cambric needle that when an iron or steel body was in an excised eye the fact was disclosed by perturbations of the needle. Further experimentation showed that if the iron or steel particle were magnetized or were situated close to the surface of the eye, these perturbations of the needle were sufficiently distinct to be of assured diagnostic significance. He then had a needle constructed with an eye in the middle by which it might be delicately balanced on a thread and used it on certain cases with good results. The principle is that if a foreign body is attracted by a magnet and made to move, if sufficiently light, so also the magnet may be made to move if the body it influences be large enough.

Foreign Adoption of the Sideroscope.—Prof. Pagenstecher of Wiesbaden, the distinguished German ophthalmologist, used the sideroscope with good results which he has reported in the "Annals of Ophthalmology." Pagenstecher succeeded in magnetizing iron and steel particles within the eye by bringing close to it a powerful magnet. This manipulation adds to the serviceableness of the sideroscope. Dr. Asmus, formerly of Breslau, but now of Düsseldorf, has added a scale to the sideroscope and a telescope to facilitate the reading of even minute variations of the needle. Prof. Hirschberg of Berlin has added a small reflecting mirror to the instrument and by so doing has avoided the need for a telescope. The movement of the beam of light so magnifies the slightest variation of the needle that it becomes easily visible.

Gonorrhea of the Prostate.—Dr. John Van der Poel of New York said that the diagnosis of gonorrhea of the prostate is not difficult if care be taken in the method of examination. The ordinary two-glass test, with about equal quantities of urine passed in each glass, is not a certain way. Most of the urine should be passed in the first glass and only a few teaspoonfuls in the second. If this sample of urine be cloudy, there is no doubt that the prostatic urethra and the prostate itself are affected. Gonorrhea of the prostate

is much more common than is thought. The notion prevailed formerly that practically all posterior urethrites affected the prostate. This was much nearer the actual truth than the present set of ideas as to its comparative rarity. The diganosis of gonorrhea of any porton of the urethra from the subjective and objective symptoms is always a mistake. Only the microscope can give assurance in the matter.

Treatment of Prostatic Gonorrhea.—The best method of treatment is with the organic salts of silver. Protargol is a good type. It is extremely soluble yet contains 8 per cent. of the metallic silver. A fresh solution of the drug should be made about every forty-eight hours. First the patient should urinate. This is the natural irrigation and cleansing of the urethra. Then the meatus should be sopped out with cotton dipped in a 1 per cent. solution of protargol. In acute cases, before any manipulations are begun, a solution of cocaine, ½ to ¾ per cent., should be allowed to remain in the urethra for about five minutes. This allays the iritability of the mucous membrane over the cut-off muscle and admits of the injection being made without the induction of spasm. From 250 to 400 grams of a 1-per-cent. protargol solution should then be allowed to flow into the bladder. At times an uncomfortable sense of fulness will occur when about 150 grams have been injected, but, as a rule this is due to the patient's uneasiness bringing on the reflex, and it can be overcome by patiently continuing the injection. The presence of fever or of any tendency to pus-formation constitutes an absolute contraindication to this method. If inevitable, the formation of pus should be encouraged and then it should be evacuated.

Fractures of the Nose.—Dr. John O. Roe of Rochester said that fractures of the nose are not difficult to treat if they are seen before the swelling and inflammatory exudation have made the tissues less tractable. Dr. Roe always employs a nose plate made of aluminum or copper. This can be bent to fit the particular nose and is made of good size, so as to cover the organ completely. A piece of adhesive plaster the size of the nose is applied first to act as a splint and prevent any irritation by the metal. If there is deformity within the nose it is corrected by means of a small sound intended for the purpose. If the physician is without the sound and the nostril is roomy, the little finger can be used to overcome the deformity. To insure against recurrence in obstinate cases Dr. Roe uses a bent spring, the arms of which are covered with rubber tubing to prevent irritation. In severe case the nose should be packed for three or four days until sufficient union has taken place to prevent recurrence of the deformity. To prevent irritation of the nasal mucous membrane, it should be sprayed with cocaine before the nostril is plugged. Dr. Roe exhibited a simple gauze packer that enables the surgeon to place the cotton in any part of the nose.

Importance of Preventing Nasal Deformities.—Dr. Wendell C. Phillips of New York said that entirely too little account is taken as a rule of accidents to the nose in childhood. If the patient does not complain of much pain and if there is but slight external deformity, these cases are often left entirely untreated. The nose is an extremely important organ that serves more than a cosmetic purpose. It is also an extremely delicate organ and even slight external injuries may seriously impair its functions. At times when these patients come to the physician the broken parts have to be refractured in order to be set. It is very easy to treat them if they come before inflammatory changes have taken place. Ball-players especially are liable to suffer from nasal injuries, and it is imperative to keep in mind constantly the importance of early treatment. Otherwise serious pathological changes take place and important functions are subverted.

Deafness and Constitutional Treatment.—Dr. Sargent F. Snow of Syracuse said that for chronic deafness constitutional treatment is even more important than the local treatment of the catarrh that usually forms the basis of the deafness. This fact is often forgotten. While the employment of jets of vapor into the middle ear gives temporary relief, no system of treatment does any lasting good that does not take account of the patient's general condition. So long as the large area of mucous membrane in the intestine, for instance, is not in normal condition, it cannot be hoped that any medication will keep the upper parts of the mucous membrane in nose and pharynx in good condition. With a sluggish liver the secretions of the upper air-passages will be sympathetically disturbed. While the skin is sluggish there can be no hope of properly regulating the mucous membranes. The most important indication is to tone up the general system. For this exercise may be the most important requisite. In older patients it usually is a *sine qua non* of successful treatment. Often the exercises and the practice of deep breathing will be sufficient to create the necessary diversion of circulation that is so stimulant to mucous membranes. Cold baths should be taken for the restoration of activity to the peripheral circulation. If for any reason they are contraindicated, then at least brisk brushing with a coarse towel should be practised. Often the sluggish patients in whom chronic catarrh finds favorite victims are inclined to the habit of warm bathing. This should be discouraged because of its relaxing effect.

Nasal Cleansing.—Dr. Abraham Jacobi of New York said that not only should the other mucous membranes and the skin be kept clean, but all the mucous membranes of the throat and nose should be frequently cleansed. Children should be taught to do this as they are taught to brush their teeth or even to wash their hands. Once a day is not too often for this purpose. For nasal irrigation warm salt solution should be used. In the treatment of chronic catarrhal conditions the use of the absorbent remedies, the iodides, are especially indicated. The iodide of iron is the most important of these for children.

New Charities Bill.—Dr. Edward Fischer of New York then offered a resolution asking the Society to deprecate the passage of the new Lunacy Bill which threatens to undo the progress that has been made in the asylums in this country by taking powers from the heads of institutions to give them to the State Lunacy Commission. On motion this resolution was carried unanimously and the sense of the Society ordered to be conveyed to the committee in charge of the bill.

Suggestion in Nervous Therapy.—Dr. Edward B. Angell of Rochester said that while abroad he had seen tabes treated by Fraenkel's method, by extension and warm baths, by suggestion, and by hydrotherapy. Under all of these methods it improved. Evidently the patient's state of anticipation has much to do with the improvement. Physicians must learn to use more and more deliberately this great therapeutic force of suggestion. It is even more important for the neuroses than for the serious nervous diseases. For the hysterical this must consist in the substitution of the physician's will for that of the patient. Every hour of the day should be mapped out for them; "charted" is the expression of S. Weir Mitchell, who made some of his greatest successes in this way.

Endotheliomata of the Ovary.—Dr. Mary Dixon Jones of New York described certain peculiar tumors

of the ovary pronounced malignant by distinguished authorities in pathology, but without the clinical aspects of malignancy. If they were malignant they would cause dreadful mortality, for they are very common. These tumors are probably endotheliomata. At times they have the general character of hematomata. Not infrequently they resemble epitheliomata, not only in their general character, but even in their microscopic details.

New Bisection of Uterus.—Dr. C. H. Richardson of Albany described a new method of cutting the uterus in two for removal by the vaginal route. When hysterectomy is to be done it is usually because the uterus has been infected and it is undesirable for its contents to reach the operation wounds. All sections that open the cavity of the uterus submit the patient to this additional risk. Dr. Richardson suggests the incision be made not in the median line of the uterus, but to either side through the muscular tissue of the uterus. By a little care, in this way, the cavity of the uterus remains intact and all danger of infection from this source is rendered nil. Dr. Richardson has employed this method with good results. He does not extend the incision so as to pass through the cervix, for this exposes the vagina to infection.

Backwoods Typhoid.—Dr. E. G. Brush described an epidemic of typhoid that occurred in the Maine woods. The first case was that of a boy who contracted the disease either by bathing in a river sixty miles below where there had been some cases of typhoid fever in a lumber camp several months before, or by association with lumbermen who were carrying the bacteria of the typhoid with them, though it did not develop for some time later. All the subsequent cases can be traced to this one. The families lived far apart, but during sickness, in order to be of help, they visited houses in which the disease existed and carried it home with them. In one family in which six members of the family developed the disease, the source of infection seemed to be the water barrel. All were accustomed to drink out of the barrel with a common dipper and to throw back for subsequent use whatever water was left. In other cases the fecal distribution of the disease could be easily traced. In this one family, however, there was no opportunity for it and the distribution seems to have been from mouth to mouth.

Strangulated Ovarian Hernia.—Dr. Bristow of Brooklyn described an operation for this rare condition. The patient at eight years of age was kicked, though not severely, by a horse. A tumor developed in the inguinal region which was reducible. After several years it disappeared and was not noticed again until the patient was forty years of age. Then the hernia redeveloped while the patient was lifting a heavy weight. Shortly before coming for treatment the hernia apparently came down one day, but could not be reduced. The tumor was very tender and gave great discomfort. It did not give the characteristic symptoms of strangulated hernia, though there was some nausea. On operation the tumor was found to contain a tube and ovary. These were replaced and the patient made a good recovery.

Ovarian Hernia in Children.—Dr. Bristow said the ovarian hernia is much more common in children than in adults. The reason is said to be that the ovaries are placed much higher up in early life than at a later period.

Inguinal Canal of Children.—Dr. Abraham Jacobi said that the inguinal canal in children is much shorter than in the adult. Moreover it is almost straight. The internal and external ring are almost on the same plane. This fact, with the extreme delicacy of infantile tissues, accounts for the greater frequency of hernia in children. This explains also the tendency of other organs besides the intestines to find their way into infantile hernial sacs.

Large Dosage in Nervous Diseases.—Dr. Wm. C. Krauss of Buffalo said that one great reason for the impotence of therapeutics in nervous disease is that insufficient doses of drugs are employed. In syphilis of the brain, for instance, he believes that enormous doses of mercury should be employed. He uses the corrosive sublimate by the injection method and in cases of necessity does not hesitate to use even as much as a grain at a dose. Of course a certain tolerance to the drug must be obtained by gradually increasing doses or fulminant toxic symptoms would develop. Dr. Krauss prefers to give mercury by injection, as the ptyalism and other symptoms of its administration are less. Fowler's solution is of the greatest service in chorea, but the small doses administered utterly fail to enable it to exert properly its activity. The dose is said to be 1 to 10 minims, with a maximum of 15 minims allowed by some. Dr. Krauss gradually increases the dose of Fowler's until the patient is taking 30 minims or sometimes even a spoonful of it. This gives effects when the small doses utterly fail. For neuralgia Dr. Krauss believes in pushing nitroglycerin. He has had a patient take as much as 30 minims of a 10-per-cent. solution of nitroglycerin and another patient, taking the drug for a year, was able to take a teaspoonful of a 10-per-cent. solution without inconvenience and with good therapeutic results.

Generous Dosage for Therapeutic Effect.—Dr. Abraham Jacobi of New York objected to the title of Dr. Krauss's paper, "Toxic Dosage in the Treatment of Some Nervous Diseases." He said that the word "toxic" would deter general practitioners from taking advantage of the practical suggestions the paper contains. With many remedies it is necessary to use them to distinct physiological effect or no therapeutic result will be obtained. Alonzo Clark showed fifty years ago that opium, to have its curative effect, must be used to what would ordinarily be thought excess. Dr. Jacobi himself uses ten to twelve grains of digitalis repeated three or four times at intervals of three hours, so that thirty to forty grains are given within eight or ten hours. These doses are not employed in ordinary cases, but when special indications call for special measures. In pneumonia, when oxygen fails to give relief and the right heart is failing, this heroic treatment has often saved life.

Alcohol in Pneumonia.—Dr. R. H. M. Dawbarn of New York said that Dr. E. G. Janeway of New York told of his personal experience in double pneumonia. He was under the care of the elder Loomis, who insisted at the critical period of the illness in administering two quarts of brandy each day for two days. Dr. Janeway ascribes to this heroic stimulation his recovery from the extremely severe symptoms under which he was already laboring when this free administration of the brandy was begun.

Large Dosage in Delirium Tremens.—Dr. Hopkins of Buffalo said that in hospital experience major delirium tremens is an extremely serious disease. Very few of the cases recover. Of late he has found that the use of heroic measures may be successful in averting the fatal issue. He does vivisection and according to the size and appearance of the patient takes away from sixteen to thirty-two ounces of blood. This is replaced by the subcutaneous injection of an equal amount of normal salt solution. Since using this method of treatment the mortality of these cases so

often fatal before has been reduced to below 2 per cent. The venesection removes a good deal of the poison from the system. The use of salt solution prevents the circulation from laboring with blood too thick and, moreover, it encourages the emunctories, especially the kidneys and the skin, to further elimination of toxic substances.

Large Amounts of Digitalis.—Dr. Lyons of Geneva said that he has had something of Dr. Jacobi's experience with the life-saving properties of large doses of digitalis. In a case of major delirium with very threatening symptoms and in which it seemed that the heart must surely fail, he stayed by the bedside during the night and administered teaspoonful-doses of the tincture of digitalis every hour for six hours, so that the patient received all together four ounces of the remedy. The action was most favorable and the digitalis seemed to be life-saving in effect.

Carotid Extirpation for Malignant Growths.—Dr. A. T. Bristow of Brooklyn said that he has had clinical and surgical experience with three cases of inoperable tumors, malignant in character, in the neighborhood of the throat in which he tied the carotids in the hope of starving out the malignant neoplasms. In a recent case he tied off the external carotid itself and all of its branches except the submaxillary. This he occluded, in the manner suggested by Dr. Wyeth, by the injection of gelatin. No bad results followed and the tumor at once began to decrease in size and has given the patient very little discomfort since. In an ordinary thin person there is very little difficulty in reaching and tying off the arteries. In Dr. Bristow's last case, however, his patient was a stout man with a short neck and the difficulties were extreme. The arteries were deep in the tissues and hard to get at. The bifurcation of the common carotid was much higher than usual and the search for the branches very elusive. Only with great difficulty and very little satisfaction was the operation finally accomplished.

Pathology of X-Ray Changes.—Dr. Carl Beck of New York City said that the changes in the skin and deeper tissues caused by the X-rays are well known. The terra-cotta-like hands of X-ray experts and the cracked and fissured hands with altered nails of those who work much with the agent are well known. Now the X-rays promise to be curative as well as harmful. In cancer and lupus they have undoubtedly done good and produced lasting benefit. The principal change produced is in the arteries. Inflammatory conditions in and around these lead to limitation in the caliber of the arteries and this at least partly shuts off the blood-supply to the skin and other tissues. In this way malignant growths are starved and low-grade pathological tissue, such as occurs in lupus, is destroyed. Such tissue has less resistive vitality and less reactive force than normal tissue. Dr. Beck reported some cases of lupus in which the X-rays have accomplished good results after many other forms of treatment had failed completely. This new therapeutic agent is of great promise and seems but the prelude to other similar remedies.

Civilized Indians.—Dr. H. D. Lake of Gowanda described the changed conditions of life of the Iroquois Indians and the consequent deterioration of health. They were magnificent specimens of manhood and womanhood when the Whites first came. Now they have taken on tendencies to obesity and have decreased in average height. They have lost their great strength and their capacity to stand fatigue, cold and hardships. Especially have they taken up the vices of civilization and suffered from its diseases. Alcohol has caused them to degenerate rapidly and has lowered their resistive vitality for disease. Tuberculosis has especially proved fatal to them. Only for their wonderful fertility this would have wiped them out long ago. Pneumonia is seldom recovered from, or, if it is, it is followed by acute or chronic tuberculosis. Bronchitis is very frequent and is liable to have tuberculosis grafted on it. A young man comes for the treatment of some apparently mild disease and proves to have serious ravages of tuberculosis in his lungs.

Venereal Diseases.—An epidemic of syphilis among these Indians lasted ten or fifteen years. Now the Indians seem to be immune. It is rare to see an initial lesion among them. The scars of the disease may be seen in the older men. They were treated by their medicine men with herbs and no mercury was used. No case seems to have gotten well in less than two years. Syphilis has undoubtedly added to the degeneration of the tribe. Gonorrhea now rages among them and the women suffer severely from the effects upon their internal sexual organs. The Indians have suffered by getting away from Nature. A marked improvement has come among them in recent years as the result of the school-training of the younger generation. They have been trained by athletic sports in the midst of their college work and come back as magnificent specimens of humanity to retain their good habits and be a source of emulation to others.

The Smallpox Problem.—Dr. Ernest Wende of Buffalo said that the present widespread epidemic of smallpox brings up very opportunely the question of the necessity for special training for medical officers of health. Undoubtedly the spread of the disease throughout the country has been due at least in part to failure of authorities to recognize the disease immediately on its introduction into a new neighborhood and this has allowed the disease to gain a foothold. There is need in this country of a special set of post-graduate courses for the instruction of health officers in those duties that require immediate action or there may be serious results. The present system that allows health officials to be a part of the patronage of a political boss, so that favoritism and not capacity for the position counts, is fatal to true hygiene. If fully and properly applied vaccination would suffice to stamp out smallpox in this country. Unfortunately, there is a class of even educated people who unite in opposition to vaccination. Vaccination regulations must be enforced and the danger from smallpox will be diminished. There is any amount of recent statistics in foreign countries to prove the protective influence of vaccination. Efforts spent on enforcing this idea are not lost, because they apply not only to smallpox here and now, but they make clearer to people the usefulness of preventive medicine in other diseases.

Vaccination as an Extinguisher.—Dr. Smith of Cohoes said that vaccination puts out smallpox as a pitcher of water puts out a small fire at its inception. It is just as criminal to permit smallpox to gain a foothold in a community for lack of vaccination as it is to let a conflagration grow out of a little fire for lack of water.

SYMPOSIUM ON PARESIS.

Etiology of Paresis.—Dr. Arthur W. Hurd of Buffalo said that recent statistics serve to show that syphilis is probably the principal cause of paresis. Foreign statistics give a higher number of paretics who have had syphilis than do statistics collected in this country, but that militates very little against the theory of the syphilitic origin of the disease if certain considerations are kept in mind. In this country friends are more apt to be ignorant of the syphilitic incident in the patient's history, or, if they do know it, they are from motives of delicacy more prone to con-

ceal the fact than is the case in foreign countries. The average number of paretics who are also syphilitics is about 68 per cent. This is all the more striking as less than 10 per cent. of other forms of insanity have a syphilitic history. It has been found in London that of the patients who had undoubted skin lesions of syphilis, only 80 per cent. confessed to having had the disease. They were either sincerely ignorant or they deliberately tried to deceive. Many of the skin lesions were comparatively recent, so that the history was fresher in mind. In Vienna out of over 80 patients suffering from indubitable tertiary symptoms of syphilis, only 54 per cent. gave a history of an initial sore and secondary symptoms. This set of statistics represents almost the same number of exceptions that occur among paretic patients. The fact that some paretics apparently have no syphilitic history does not argue very forcibly against the syphilitic origin of the disease in by far the majority of the cases.

Experimental Inoculation.—In Europe experimental inoculations that would be considered unjustifiable in this country were made with the virus from syphilitic patients upon asylum paretics. Altogether nine hopelessly demented paretics were thus inoculated. Not one of them took the disease—a sure sign that they must all have had syphilis before and acquired immunity to it. Most of these paretics were patients who gave no history of syphilis and in whom, therefore, the existence of immunity might be doubted.

Paresis Distribution.—While Egypt and Japan suffer very much from syphilis, paresis is rare in either country. This is evidently due to the fact that some other causative element besides syphilis is needed. Syphilis provides the basis for the development of paresis, but nervous overwork, emotional strain, at times even physical exhaustion, furnish the additional causes. Egypt is noted for the do-nothing character of its inhabitants and Japan has not as yet been touched enough by the excitement of the new Western civilization to get into the condition of hurry and worry that actively predisposes to paresis. As Krafft-Ebing said, the two causative elements are syphilization and civilization. The latter factor as yet spares Egypt and Japan. Paresis is most common among military men, actors, good livers, brokers and professional men liable to lives of nervous strain. It is very rare among clergymen, Quakers and among country-people generally, while very common in the large cities. The disease is much more rare among women than men and, in women of the different classes of society affects most those who are most liable to be affected by syphilis. Very few women of the better classes suffer from it.

Juvenile Paresis.—The disease used to be considered very rare in children and youths, but certain special forms of it have been found to occur quite frequently of late years under the age of twenty. In most of these cases there is a history of hereditary syphilis. In some of them there is a history of acquired syphilis. While ordinarily the sexes are very unequally affected, the proportion being usually at least four men to one woman, in these juvenile paretic cases the proportion in the two sexes is nearly equal, as would be expected, since heredity acts impartially to both sexes.

Previous Degenerative Condition.—It has often been noted that, in patients in whom paresis developed after syphilis, symptoms of some mental weakness had existed before the syphilitic infection. It would seem that syphilis finds in an invalid brain an especially favorable field in which to produce further degeneration. Even after syphilis not everyone becomes paretic, but only those whose nervous systems were not over stable beforehand. The changes, for instance, produced by alcohol in the nerve tissues may predispose to paretic changes after the acquirement of syphilis. Trauma or sudden emotion may act on a syphilitically-predisposed nervous system to produce paresis. There can be no denial of the fact that these other conditions are contributing causes of no little importance. It is hard to know just the rôle that alcohol plays in these cases since devotees of Venus are also as a rule worshippers at the shrine of Bacchus and *vice versa*.

Ripening Elements in Etiology.—Certain pathological conditions seem to mature the tissues for paresis after syphilis has done its work. Trauma is one of these. The cases, however, in which trauma has played a causative rôle apart from syphilis are so rare as to be doubted by most authorities. Syphilis, while not the sole factor, is certainly the most frequent cause of paresis. It cannot be found as frequently in the history of paresis as in tabes, but this is rather confirmatory than otherwise, since tabes and paresis are very similar pathological conditions.

Early Diagnosis of Paresis.—Dr. Francis Dercum of Philadelphia said that the problem of the early diagnosis of paresis is not easy. Mistakes are frequent. It is not unusual to find that paresis has been treated for months as neurasthenia when eventually recognized. The resemblance is only superficial, however, and should not deceive the trained and watchful observer. Both classes of patients may complain of being tired, of having peculiar feelings and general symptoms, but the complaints come in very different ways. Of course, when the loss of muscular tone that gives the slouchy walk and blankens the facial expression have developed, it is not hard to recognize paresis, but the disease has certain pathognomonic characteristics long before this.

The Neurasthenic: the Paretic.—The paretic patient seldom comes of himself to consult a physician. He is brought by his friends. He, unlike the neurasthenic, has no long story to tell. Symptoms will be found, but only on careful questioning. He has ringing in the ears, *muscæ volitantes* or sparks before the eyes, and he may have severe lightning-like pains. His friends will tell of lapses of memory and inability to care for his business. As a rule the paretic is scarcely conscious of these things himself. The friends are alarmed about his condition. The neurasthenic, on the other hand, complains of loss of memory and tells of every pain and ache and of every slightest sensation that can be translated into pains or aches for weeks before his visit. The neurasthenic's pains are vague. His friends rather laugh at his symptoms.

Sleep in Neurasthenia and Paresis.—The neurasthenic sleeps well at the beginning of the night; then wakes to remain fretfully awake and rises in the morning tired, not caring to face the day. Toward evening the neurasthenic feels best and is almost ready to persuade himself that there is nothing the matter with him. The paretic tosses during the night and sleeps a little toward morning. He wakes rather refreshed from his sleep and feels best in the morning. Toward evening he becomes exhausted and all his symptoms are then at their worst.

Neurasthenoid Stage of Paresis.—Dr. Dercum thinks it eminently undesirable to say that the first stage of paresis is neurasthenia. The symptoms recall neurasthenia and resemble them somewhat, but can be rather easily differentiated. The visual fields are distinctly narrowed early in paresis and this is a pathognomonic sign. Only very severe cases of neurasthenia have the symptom and then it varies from day to day. The paretic by his manner at once reveals that he is out of touch with his environment. There is a vacant expression even before the smoothing out of the facial furrows from loss of tone in the facial muscles has

taken place. There is a vacant distrait air even before mental symptoms have become very prominent. The preparetic manner is an entity that really exists and is readily recognizable by those who have had considerable experience with it.

Frequency of Paresis.—Dr. Charles G. Wagner of Binghamton said that paresis was first definitely recognized only about eighty years ago. Esquirol described some cases before that which were probably paretic, but he did not realize the significance of the symptom-complex. The disease was not recognized in America until much later. It was very rare in this country even in 1840. It was not overlooked, for some specialists in mental diseases who had seen it abroad were on the watch for it. Statistics show that there has been a constant increase of the disease ever since 1850. During the decade between 1850 and 1860 it first began to play a prominent rôle in the insane asylums of this country.

Present Incidence of the Disease.—At present somewhat less than 10 per cent. on an average of the patients in American insane asylums are suffering from the disease. This is much less than abroad. In foreign asylums between 20 and 30 per cent. of the inmates are paretics, with most of the statistics nearer 30 per cent. than the smaller number. There is quite a little variation in the numbers suffering from the disease from year to year. About the middle of the last decade the figures were higher than at present.

Paresis in the Professions.—At one prominent asylum in this country the professional men suffering from paresis are divided as follows: Actors, 8; lawyers, 7; doctors, 5; military men, 4; clergymen, none. These represent about the usual proportions. Clergymen are usually spared and this is undoubtedly due to the fact that they have syphilis less frequently than members of any of the other professions. The disease attacks those who have trying work to do, who live on their nerves, and spend life in the midst of emotions. The overworked doctor suffers more from mental strain than from physical fatigue.

Other Occupations.—Other trades are not spared. The butcher, the baker, the candlestickmaker, the merchant, the shoemaker, all count a goodly number among the inmates of asylums suffering from this dreadful disease. It is sometimes said to attack head-workers in preference to handworkers, the educated rather than the uncultured. The reports of American asylums at least do not bear out this statement. It is worry, not work that predisposes the syphilitic, or the alcoholic, or the otherwise degenerate to the paresis about to develop. The statistics of our asylums show that the disease rages especially among the native-born. There is a great preponderance of native Americans among the paretic inmates, though, taking the patients at asylums altogether, about two-thirds of them are foreign born.

Deaths from Paresis.—Most of the deaths take place between thirty and forty-five, though asylum reports show deaths under twenty and even over seventy years of age. The disease is inevitably fatal. Dr. Wagner was able to find only one case in recent medical literature in which there was claim of a cure. The disease presents decided remissions and these sometimes last for months. The average duration of the disease, however, is only about two and one-half years. Very seldom will a patient with typical paresis live five years from the first symptom of the disease. The disease is undoubtedly on the increase in this country and careful study will lead to its earlier detection than heretofore.

Limits of Treatment.—Dr. Edward Cowles of Boston said that in the presence of true paresis the physician is absolutely helpless. Very early in the disease when only neurasthenic symptoms are present a history of syphilis confirms our suspicions as to the existence of paresis, but its presence does not help the therapeutics of the disease. Antisyphilitic treatment does no good and probably even does harm once the initial symptoms of paresis have declared themselves. In the early stages of the disease it may, perhaps, be kept from running so rapid a course as it otherwise would by lessening the mental strain on the individual. Oppenheim says paresis is due to stress and syphilis. The stress can be lessened at once with the hope of prolonging the life of the patient. Kraepelin thinks paresis a nutritional disease not unlike myxedema and due to some poison in the blood or the failure to neutralize some toxic product. Sir Dyce Duckworth suggests that paresis is an auto-intoxication. This causes changes in the nervous systems which react to lower tissue metabolism and cause further toxic degeneration of the nervous system. This idea makes the therapeutics in very early stages not quite so hopeless.

Serum Treatment.—Two Scotch observers recently have declared paresis to be due to an intestinal intoxication. Bruce noticed that the initial stage of the disease was always ushered in with gastric disturbance and fever. He procured some serum from blisters of a paretic patient suffering from lumbago during a pronounced intermission in his paresis. This injected into other patients produced an intermission in the others. Bruce proposes to inject horses with colon bacilli and thus produce a serum that he thinks will be of benefit in paresis. Dr. Robinson, the other Scotchman, thinks paresis due to the effect of auto-intoxication upon the cerebral blood-vessels. He considers the toxic substances of intestinal origin and hopes to be able to neutralize their effects before they work their most serious evils.

Second Day—January 29th.

Prize Essays.—The only essay submitted bore the title "A Study of the Connective Tissues of the Orbit by a New Method." This enables the recognition of the capsule of Tenon, the insertions of the muscles, and other parts of the tissues of great practical interest. The essay bore the motto "*Palma non sine pulvere.*" The name of the author is Dr. Lucian Howe of Buffalo, and to him was awarded the prize offered by the Society.

Treasurer's Report.—The annual expenses of the Society exceeded its income by over $800. The two items that explain this deficit are the salary of an additional secretary at $350 per annum and the semi-annual meeting, the expenses of which were about $500. The Committee reports that if the present deficit continue from year to year, it will not be long before the surplus at present in the Treasury will be materially lessened.

Treatment of Ringworm.—Dr. George Thomas Jackson of New York said that ringworm of the non-hairy skin is easy of treatment. Most of the cases do not come for treatment, but are cured by sulphur ointment or some simple home remedy. On the hairy scalp it is very obstinate and the patient wanders from doctor to doctor. Dr. Jackson has for some years been using a remedy that gives excellent results. He employs goose grease as an excipient. A dram of iodine is dissolved in an ounce of the goose-oil. The remedy is applied twice a day until some irritation is produced, then only once a day. If the reaction is severe the remedy is stopped for some days. The pain of the application is a little severe at first, but passes off. The first effect of the remedy is to cause the fall of the hair so that the patch looks like one of alopecia areata.

After a time a new growth of hair occurs and this is the sign of cure. No epilation is needed. The method is extremely simple. If the reaction is severe, salicylated oil may be employed for some time until the inflammatory condition lessens. It takes just three weeks now to cure barber's itch, formerly so obstinate a disease. This is true not only in private practice but also in hospital practice. Certain rare cases resist even this treatment. For these Dr. Jackson recommends one-half to one dram of croton oil to an ounce of sulphur ointment. It is not always easy to get genuine goose-grease. There are factitious articles sold under the name that are unsuitable. A reliable drug-house will furnish it, however.

Three Years' Experience.—Dr. Baum said in the discussion that he had had three years of experience with this method of treatment with such excellent results that he heartily endorses Dr. Jackson's recommendation. On sensitive skins Dr. Baum has found 5 per cent. wintergreen-oil ointment very satisfactory.

Society Initiation and Neurosis.—Dr. Frederick Sefton of Auburn gave the details of a case in which the history included severe hazing. The patient, a student at an academy, in the course of initiation into a secret student society was taken at night to a graveyard and made to sit for half an hour on a tombstone; then he was hung up by the thumbs till he fainted and lastly rolled in a barrel with nails on the sides. During this procedure he lost consciousness and could not be revived, so he was left in the hallway of his home. He did not return to the school. About a year after he began to be peevish and irritable, especially to his friends. Finally, in a state of excitement he attempted to shoot his sister. He was followed, tried to escape, lost consciousness, and when he came to said he had no memory of his acts during the period of excitement.

Psychic Epilepsy.—Later he had several such attacks. In one he was found suffering in the garden and had evidently taken some of the Paris-green he was using for potato bugs. He had no memory of this, but asked not to be left alone any more lest he should hurt himself. Under bromides and outdoor exercise he improved. He has now been for several years the purser of a coastwise steamer and is healthy and happy. All his friends believe he had lost his consciousness when he attempted murder and suicide. It is evident, however, how serious would have been his case had he killed his sister when he shot at her. Dr. Sefton used the case as an illustration of the necessity for an impartial medical expert to advise the Court in such cases.

Fright and Epilepsy.—Dr. William Browning of Brooklyn said that fright can only be considered a cause in epilepsy when it immediately precedes the original attack. These cases are complicated medico-legally by the fact that it is only when patients are irritated by some interference with their plans that they become violent. This adds to the suspicion of guilt.

Pseudoleucemia.—Dr. John L. Heffron of Syracuse said that the pathogenesis of Hodgkin's disease or pseudoleucemia is as yet a mystery. The best authorities seem to think that the disease is a tuberculosis of the lymphatic structures. Hence, the following case may be interesting. The father suffered from gravel and endocarditis. His mother's family history contained heart-disease also. The patient came to be treated for a cough. Enlarged glands were found above the clavicle. The superficial veins were enlarged over the anterior thorax. All the other lymph-glands were enlarged especially on the right side. There was some bagging of the right lung. Some subcrepitant râles on deep inspiration were to be heard. Sputum was collected, but no tubercle bacilli were found. The blood gave a simple picture of anemia. He was advised to use Crédé's ointment and the iodides were used internally. His skin became very itchy. His breathing became more and more difficult, especially when lying down. It was evident that some enlarged glands were pressing on the right bronchus and almost occluding it. He coughed more, but still no tubercle bacilli could be found. His urine was carefully examined for tubercle bacilli, but none were present. He gradually grew worse, orthopnea developed and he died from the pressure of the enlarged glands upon nerves and arteries as well as the bronchi. Careful examination of the tissues was made after death to find if possible tubercle bacilli anywhere in the body. The only condition present was a lymphosarcomatous degeneration of all the affected glands.

Leucocytosis in Diagnosis.—Dr. Thomas R. Brown of Baltimore discussed leucocytosis as an aid to diagnosis and prognosis. He said that Metschnikoff's phagocytic theory brought the white blood-cells into prominence. In more recent years the blood-serum has been found bactericidal and this has seemed to lessen the importance of the white cells for resistive vitality. Since it has been shown that the bactericidal properties of the blood-serum are due to nucleoproteid substances the white cells have regained their reputaton, for these substances are contained in abundance in the white cells. The presence of a physiological leucocytosis during the height of digestion should be a warning not to count the leucocytes for diagnostic purposes just after a meal.

Eosinophilia.—The presence of a large number of white cells that give the eosinophile reaction is of special significance. In typhoid fever it means a favorable prognosis if it occurs early. In trichinosis eosinophilia is almost pathognomonic. It occurs also in cases of intestinal parasites as the anchylostoma duodenale. It is probable that for soldiers returned from the tropics this reaction may serve to rouse suspicion of the presence of intestinal parasites that might otherwise escape notice. Dr. Brown said that an excess of lymphocytes is present in the blood in a very early stage of whooping-cough. This enables the disease to be recognized during the period of simple catarrhal symptoms and precautions may be taken not to expose other children. The differential blood-count promises to be of service in the detection of a number of infectious diseases. This is the most common form. It usually means severe infection or pus formation. In a case of acetanilid-poisoning this form of leucocytosis was present, giving rise to the idea that secret drug habits may perhaps be detected by the blood-count. Sudden rises and falls in the number of leucocytes usually call serious attention to the patient's condition. In appendicitis it may mean perforation with peritonitis. In general, it may be said that blood-counts are not infallible and must not be taken alone, but in connection with other symptoms it is often of diagnostic importance.

Abscess of Liver.—Dr. Edgar A. Vander Veer said that abscesses are usually associated with dysentery. Knowledge of the subject comes from India. Interesting material on the subject is now coming from the Philippines. This case reported was thought to be one of empyema until the dressings were saturated with bile. The patient had served in the Philippines, where he contracted dysentery. As this could not be cured he was finally discharged. For a year his dysentery continued with some intermissions. Finally, he developed a tender swelling on the right side that greatly interfered with respiration. This was thought to be in the pleural cavity. It was aspirated and three and one-half pints of brownish purulent fluid removed.

Later on an open incision was made and 1,000 c.c. of similar fluid drained off. This contained no micro-organisms. It was suspected to be tuberculous or to be due to the pneumococcus, the organism, as sometimes happens in these cases, having disappeared. When the bile flow began the true nature of the case was realized. The patient made a good recovery, though for a time his dysentery became severe again.

Gunshot Wounds of Liver.—Dr. E. W. Mulligan of Rochester detailed the case of an Italian salt-miner who shot himself in the abdomen while in a fit of despondency. Wounds of the liver have heretofore been thought practically always fatal. During the Civil War very few recovered. Pirigoff, in 1865 said they were always fatal. Of the three conditions of the liver, ruptures are most fatal, incisions next, and gunshot wounds least fatal, but even these have a mortality of over 60 per cent. Fortunately, the prognosis is now growing better because of modern advances in surgery. Schlatter advises tamponade of the wounds; the cautery cannot be trusted entirely and sutures tear out. Bergmann suggests protecting sutures with gauze to prevent their tearing through the liver tissue. The wound of entrance into the liver in Dr. Mulligan's case was small and needed no treatment. The wound of exit was jagged and torn, bleeding profusely, and required packing. Three yards of gauze were used for packing and the end brought out through a counter-opening made for drainage. The bullet was found in the muscles of the back and was removed. The patient was out of the hospital in a month after his frustrated suicide.

Surgical Treatment of Peritoneal Tuberculosis.—Dr. John W. Whitbeck of Rochester reported three cases of tuberculosis of the peritoneum treated by incision and irrigation of the peritoneal cavity with salt solution. The first patient had suffered for some time from abdominal tenderness and accumulation of fluid. The abdomen was opened, irrigated with salt solution and the patient made a good recovery, being now healthy and strong. The two other patients died, one from pulmonary tuberculosis, the other from a tuberculous rectal fistula. These latter cases seem not to have been taken in time.

Unusual Herniæ.—Dr. John B. Harvie of Troy said that operators for hernia have found almost every viscus in the sac. Dr. Harvie has found the ovary several times, the appendix a number of times, and even the kidney, a loose floating organ, presented at the hernial ring after reduction of the intestinal contents of the sac. In a recent case he found the urinary bladder in the sac. The viscus was not recognized until after incision, when urine flowed. It was then reduced and a catheter passed every hour. The patient recovered without incident. In a number of reported cases the bladder's presence has been unsuspected and it has been wounded. It needs to be looked for more carefully.

Modern Methods of Diagnosis.—The President, Dr. Henry L. Elsner of Syracuse read his annual address on the subject of "The Value to the Physician of Modern Methods of Diagnosis." [See page 193.] He said that in recent times advances in the application of scientific principles to the diagnosis of disease have brought with them a metamorphosis of the art of medicine into a practical science. The laboratory is now recognized as the right hand of the medical man. Physicians who have failed to keep in touch with laboratory diagnostic methods are now far behind their wiser fellows. The sale of such books as that of Von Jaksch or that of Simon shows how widespread is interest in scientific diagnosis. The president then spoke of the advances in the chemical diagnosis of gastric disease, of the microscope and the centrifuge in urinary diseases and of the progress in the diagnosis of hematological conditions. All these are in the line of securing greater exactness of diagnosis. The old objection that a man cannot be scientific and a good practitioner no longer holds. The hope of the future of medicine is the union of scientific training with clinical training. For this the Twentieth Century opens most auspiciously.

Election of Officers.—The following officers were elected for the coming year: President, Henry Reed Hopkins, Buffalo; Vice-President, William A. Moore, Binghamton; Secretary, Frederick C. Curtis, Albany; Treasurer, O. D. Ball, Albany.

[*To be continued.*]

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held December 3, 1901.

The President, Joseph Collins, M.D., in the Chair.

Tumor of Brain.—Dr. M. Allen Starr presented a woman who had been brought to him by her family physician, Dr. Bush, on November 1, 1900. She had been perfectly healthy before this illness and there was absolutely no history of specific disease. On July 1, 1900, she had been exposed to a very intense heat and suddenly after this she had had a general convulsion. She had been ill after this for two or three days and had then recovered, but the convulsion had been repeated two weeks later and she had had them at intervals of two weeks to a month up to the time of coming to him. During this period she had lost flesh and strength and had suffered from dizziness and impairment of vision. In October, 1900, the left side of the body had become distinctly weaker. Her husband was quite positive that the convulsions were usually limited to, or were much greater on, the left side of the body. The attack began with numbness in the finger and thumb of the left hand; then a closure of the hand occurred, after which the numbness extended up the forearm and arm, and the forearm became flexed and the arm abducted. Lastly, there was a shaking. The numbness would extend up to the shoulder and then she would lose consciousness. After that the leg would become convulsed and the left side of the face would twitch. On examination he had found no strabismus or apparent paralysis of the face or tongue. The left hand was weaker than the right, as shown by the dynamometer. The left knee-jerk was increased, and there was some numbness in the hand as compared with the other side. She had suffered a good deal from headache. When seen a month later the attacks were more frequent, so that she was having as many as eight in a day, and the headaches were more severe. When seen again in January, the attacks still continued, but were not quite so severe, and she did not lose consciousness. She was losing about half a pound of flesh a week. The difference in the two hands by the dynamometer was represented by 40 and 60, as they had been at first. Operation had been repeatedly urged by him, but consent had not been obtained until March 19, 1901, when her condition had been much poorer, and there was a beginning optic neuritis. She had been sent to Dr. A. J. McCosh at the Presbyterian Hospital. It was thought that the lesion was located in the middle third of the motor zone, in the posterior central convolution, and an incision was made in accordance with this view. The operation was done under chloroform, a horseshoe incision being used. The skull was sawn through and the brain exposed. On lifting up the flap of bone, it was evident that there was some thickening of the

dura. The dura was reflected, but was nowhere found to be adherent. Posterior to the fissure of Rolando and occupying the middle third of the posterior central convolution, the brain surface was yellow and was markedly destitute of blood-vessels. It was evident that this discolored mass was a tumor lying upon the brain. It had a thin capsule, but was carefully separated from the brain tissue. In the interior, however, it was not limited by a capsule. On removal, the mass measured one inch anteroposteriorly and 1¼ inches vertically, and was one inch thick at its thickest point. There was a smooth external surface, but it was nodular internally. On section, it was hard and not at all vascular. The cavity in which the tumor had lain was lined by compressed convolutions, but at the bottom the tumor invaded the white matter. There was no hemorrhage from the pia and the pulsation of the brain quickly returned. She made a rapid and uninterrupted recovery from the operation. Immediately after the operation there had developed a hemiplegia of the left face, arm and leg. This had gradually passed off and there was nothing left of it except a slight weakness of the hand. She had been entirely free from the attacks since the operation, had been free from headache and had gained about twenty pounds in weight. At the present time there was an intention tremor and an athetoid movement in the left hand. On the left side tactile sensation, temperature, pain and muscular sense were all impaired to about the same extent. She was not able to determine by the feeling the nature of many objects when grasped by the left hand—a condition that had not existed before the operation. The knee-jerk had increased upon the left side. The optic neuritis had entirely disappeared. The hemiplegia he would ascribe to the tearing of the brain during the operation. The tumor proved to be a sarcoma.

Intense Flushing of the Face.—Dr. Edward D. Fisher presented a man of twenty-two, who from the age of sixteen had had periodic attacks of intense flushing of the face, sometimes in the form of a distinct red band. It never extends farther down than the chest. He is dull and stupid at these times, although he has never lost consciousness or had a distinct epileptic attack. It was not connected with nervousness or emotions; it resembled erythromelalgia. Iodide and bromide of potassium were the remedies that had given the greatest relief. The man's habits were excellent, and he is largely in the open air, being a carpenter.

Dr. W. M. Leszynsky said that he had seen two patients with a similar disturbance of the cervical sympathetic as a result of excessive coffee drinking.

Dr. Joseph Collins suggested that the man be given half a dram of fluid-extract of cascara sagrada every night for two weeks, with no other treatment whatever. The affection was evidently a localized vasomotor paresis confined to the cephalic area which had been proved to be in connection with disturbance of the lower intestine. He was not inclined to look upon this as a serious disorder, but rather as originally a toxemia and secondarily a bad habit.

Dr. Joseph Fraenkel said that he had had a similar case under observation for several weeks at one time, and Dr. C. L. Dana, who had also seen the patient, had been of the opinion that it was a vasomotor paresis arising from intestinal toxemia. There were also some neurasthenic symptoms directed to the sexual sphere.

Dr. Fisher said that he had treated the boy at first on the basis suggested by the last speaker, but further observation had led him to think this was a mistake.

Tumor of Cerebellum Involving the Abducens Nucleus.—Dr. M. G. Schlapp presented a man, twenty-one years of age, who had come to him about six weeks ago. There was no tuberculosis in the family and he had had no syphilis. About two years ago he had first noticed that at times he would become dizzy and that this would be followed by headache and vomiting. Shortly after this he had fallen out of a wagon and since then the left side had grown weaker. Examination of the eye showed choked disk, weakness of the left leg and an ataxic gait. The ataxia was most marked in the left leg; the knee-jerks were absent; the plantar and abdominal reflexes were present; the pupils were equal and reacted to light; there were no sensory disturbances. A week ago he had developed a disturbance of the conjugate movement of the eyes, which had disappeared in two days. The convergent reaction was, however, all right. He had made a diagnosis of a tumor involving the anterior part of the left side of the cerebellum and in some way affecting the abducens nucleus.

Tumor of Posterior Central Convolution.—Dr. Schlapp presented a woman, forty-one years of age, a Bohemian cigar-maker. She had enjoyed good health up to five years ago. At that time she had fallen down stairs and had sustained some contusions, including one on the left side of the head. Subsequently the right arm and shoulder had become the seat of twitchings, and there were attacks of loss of speech. After three years they had extended over the shoulder and neck to the face and tongue. At first these attacks had occurred once in two weeks, but recently there had been many in a day. Latterly she had also suffered from intense shooting pain in this limb. He had made a diagnosis of a tumor in the posterior central convolution extending back into the parietal lobe. There was astereognosis and impaired tactile and muscular sensibility on the affected side. Pain and temperature sense were not specially disturbed. Dr. Woolsey had operated upon this patient and had found a yellowish and somewhat indurated area, about the size of a dollar, in the posterior central convolution. A section of this tissue was exhibited under the microscope and it showed that the mass removed was not a tumor. Since the operation the strength in the affected hand had improved. She had had four convulsions. The case was presented as having a possible bearing on the question of astereognosis. Apparently the anterior central convolution had not been involved in the growth. It was probable that this convolution was the one having to do with motion, whereas the posterior central convolution had to do chiefly with sensation. In astereognosis the pain and temperature sense are not usually involved, whereas tactile and deep muscular sense are involved. It was known that the two latter do not decussate in the spinal cord, but end in the columns of Goll and Burdock.

Dr. B. Onuf said that he had seen a recent case exhibiting marked conjugate deviation together with a very decided ptosis on the left side and on the right side a paresis of the abducens nerve. This deviation had come on after an apoplectic attack of hemiplegia. He did not think such a case could be explained by the involvement of the abducens nucleus; the lesion was evidently in the region of the third nucleus. It was possible that involvement of the posterior longitudinal fasciculus might explain the deviation. In his case the deviation was permanent. The affection of the right auditory nerve would confirm the theory that the abducens was affected.

Multiple Endothelioma of the Dura.—Dr. Hunt presented this specimen, which was derived from a woman, forty-five years of age, in the Montefiore Hospital. When fifteen years old she had become suddenly deaf. Two years before admission she had be-

gun to suffer from headache and these had persisted. There had been no vertigo. At times her legs would suddenly give way and she would fall. On admission, examination showed that there was a tendency to fall to the right; the right pupil was larger than the left; facial innervation on the right side was deficient; the tongue deviated to the left; the optic nerve showed choked disk, and weakness ot the right upper and left lower extremity was very marked. The tendon reflexes were all exaggerated, but this was especially noticeable in the right arm and left leg. The right patellar reflex only was present. At the autopsy over one hundred tumors were found on the dura, aggregated chiefly about the falx, but extending over the convexity on either side. Four of the tumors were larger than the others. At the base of the brain the dura mater was free, but there were two tumors, the size of a pigeon's egg, occupying the interval between the pons and the medulla and causing a pressure atrophy of the middle peduncles on each side. These tumors were found to be endotheliomata and the vessels showed considerable calcareous deposit. There was no evidence of malignancy.

Gliosarcoma of the Right Frontal Lobe.—Dr. Hunt also showed this specimen, taken from a man, forty years of age, who had been brought to Bellevue Hospital because he had fallen in the street. According to friends, he had been acting very peculiarly for the past four months. He was moderately emaciated and the face was flushed. There was an incomplete left-sided hemiplegia with loss of skin and tendon reflexes on the affected side. He was stupid, but could be easily aroused to answer questions. He showed a strong disposition to turn everything into ridicule. There was no conjugate deviation of the eyes and no aphasia. The pulse was not slow. At the autopsy the meninges were found to be normal, but the convolutions over the right frontal lobe were flattened and very edematous. On making a section into this lobe a large tumor had been found growing in the white substance. It had grown outward and downward into the frontal cortex. The tumor proved to be a gliosarcoma.

Brain Tumors.—Dr. M. Allen Starr opened the discussion on this subject, reporting the following case: The patient was a boy of eleven years, who had come to him after treatment for malaria by other physicians because of the persistence of morning headaches. These headaches had begun in June and had gradually increased in severity up to October 8th, when Dr. Starr had first seen him. The boy was then dull, spoke very slowly, and would drop asleep if left alone for a very few minutes. The left external rectus was a little weak; there was nystagmus and double optic neuritis. He had suffered from vertigo and had vomited twice unexpectedly. His gait was quite ataxic and the left limbs assumed involuntarily abnormal positions. There was no inability to smile, either voluntarily or reflexly. The ataxia of the right leg was very marked and was associated with a peculiar involuntary position of the hand and arm. There was apparently no anesthesia on the left side and no hemianopsia. A diagnosis of tumor of the optic thalamus had been made at once because of these forced positions. Dr. Starr said that he had seen such a case in Meynert's clinic in Vienna. Meynert considered these automatic movements and forced positions as a voluntary correction of a delusional state. The question of operation was not entertained. As the boy's father had died of general paresis the boy was put on mixed treatment and this had been pushed vigorously for a number of weeks. During this time the boy had grown steadily worse and had had several collapses accompanied by a pulse of 40 and rapid breathing. He had been last seen on October 27th, and had been able then to understand what was said, but could not talk at all. He was totally paralyzed on the right side and was able to turn the head only to the middle line. There was apparently no disturbance of sensation on the paralyzed side. The limbs were no longer held in stiff positions, but were relaxed and the tendon reflexes were abolished. There was no complaint of headache. The pulse was 80, the respirations regular, and there was no fever. He died quietly on the following day. The autopsy revealed the presence of a tumor occupying the optic thalamus on the left side, which was enormously enlarged. It was completely infiltrated by a sarcoma. The tumor had apparently compressed the internal capsule and had infiltrated all of the tissue of the segmentum about the corpora quadrigemina. The ventricles were enormously distended with fluid.

Dr. Starr said that this case had led him to look over his private records of brain tumors for the past six years. He had seen in this time 25 cases. Fifteen of the patients were males and ten females. All ages appeared to be about equally liable. The average duration of the disease had been eleven months, which was much shorter than generally stated. The tumors had been distinctly located in 15 cases and it had been possible to operate in 4 cases. No diagnosis of tumor whatever had been possible in 2 cases. One of these was a patient whom he had been asked to see because it was purposed to commit him to an asylum. There was a history of chronic alcoholsm, some headache and morning vomiting; great mental irritability and imperfect memory. At times he was very violent with his family, though perfectly quiet in the presence of others. In the previous month, on two occasions, he had had sudden attacks of coma lasting about half an hour. Two days after this examination the patient had suddenly died and the autopsy had revealed a large tumor occupying the left superior parietal convolution. The other case had been seen in consultation with Dr. Biggs. Several physicians had agreed upon the diagnosis of bulbar paralysis. There was no optic neuritis and no headache. At the autopsy, a small tumor had been found occupying the entire medulla oblongata. Localizaton had been impossible in 8 out of his 25 cases. In 19 an operation had been absolutely impossible, either because of the absence of a diagnosis or because the tumor was inaccessible. The operation had been done in 6 cases and in 2 had been successful in that the tumor had been found, but one of these patients had died. Therefore, there had only been one patient out of 25 who had recovered. In one case, astereognosis had been considered the most important symptom of localization and consequently the parietal region had been freely exposed, but no tumor had been found. In one case in which the tumor had been in the cerebellum Dr. McCosh had operated. To relieve the distention of the ventricles they were tapped and drained. Sixty ounces of fluid a day had been obtained from the lateral ventricles. The patient had finally died, and an infiltrating tumor of the cerebellum had been found. In another case of cerebellar tumor, the ocipital bone had appeared worm-eaten at the operation and had been the seat of such a profuse hemorrhage that further exploration had been considered inadvisable. In a summary of the cases of brain tumor made by him in 1896 it had been shown that about 7 per cent. of brain tumors are operable and that of the cases operated upon about one-third recover from the operation. These earlier statistics had been made up from a large number of cases by different operators and had not been from his own records alone.

Dr. A. J. McCosh said that the case shown by Dr. Starr was an unusually favorable one for operation be-

cause of the accuracy of the diagnosis, the accessibility of the growth and its freedom from vascularity. Most of the brain tumors that he had seen had usually caused considerable hemorrhage and severe shook. The statistics of these 25 cases seemed to him to come more nearly to the truth than the older ones giving a more favorable percentage.

Dr. Leszynsky said he wished to report the further progress of the case reported by him to the American Neurological Association. The patient had been suffering from symptoms pointing to a lesion in the motor area for nearly two years before coming under observation. The tumor had been found at operation to be an endothelioma of the motor cortex. The operation had been done two years and a half ago and, although the patient had relapsed more or less into a hemiplegic state, he had practically recovered. The localization in this case had been exceedingly accurate. No untoward result had followed the operation and no additional damage had been done to the brain by the operation. The patient was still engaged as an accountant.

Dr. Onuf reported a case in which the localization had been very satisfactory. The history had begun in July, 1901, with slight jerkings of the shoulder and hip, followed by weakness of the left leg and arm. About two months after the onset of the symptoms the speaker had seen him and, although suspecting brain tumor, had placed the man on vigorous antisyphilitic treatment for two weeks. A peculiar feature had been that there was chiefly an affection of the abductors, flexors and extensors of the hip, while the extensors of the knee had been less affected, and the muscles of the feet hardly at all. The jerkings had been purely of the Jacksonian type. The case was remarkable because of the absence of headache and local tenderness. The diagnosis had been made, chiefly on the predominance of the affection of the central part of the extremities, of a tumor situated between the shoulder and hip centers, probably quite near the cortex. Immediate operation had been urged, but it had not been done for three weeks. The tumor had been found directly beneath the trephine opening. There was much shortening, so that a sound could be introduced for two inches without encountering resistance. The microscope showed the tumor to be a gliosarcoma. It had been impossible to remove all of the tumor.

Dr. Schlapp said that in his specimen there was an arteriosclerosis with an increase of gliar cells and the deposition of calcareous material. He had not made the diagnosis of tumor involving the abducens nucleus entirely on the conjugate deviation, but the fact that the left side of the face had been weaker than the right had seemed to confirm that view.

Dr. Joseph Fraenkel said that he had seen a few days ago a boy of about eighteen, who claimed to have been well until struck in the back of the head by a swinging door. After this he had developed paralysis of the right third nerve, followed soon afterward by hemiplegia. He had been operated upon and the base of the brain searched for a basal cyst, but none had been found. He had then been admitted to the Montefiore Hospital. There was paralysis of the left upper extremity and an enormous contracture, with less marked paralysis of the left lower extremity and some slight optic atrophy. Subsequently inquiry had elicited the fact that his companions had noticed long before the accident that the boy showed a peculiar tendency to laughter. Dr. Fraenkel recalled a case which had exhibited similar automatic movements to those reported in Dr. Starr's case. He had come to the conclusion that the tonus of the muscle was the most important factor in connection with the production of reflexes. He would like to know how absence of the reflexes could be explained in Dr. Starr's case.

Dr. Joseph Collins exhibited a photograph of an enormous tumor of the frontal convolution, which had been diagnosticated by an eminent neurologist and by himself as a tumor of the pons. His experience had gone to show that brain tumors are far more inoperable than was generally believed. Statistics had seemed to show that about 7 to 10 per cent. were operable, but when one came to sift these it was found that only about 3 or 4 per cent. were operable. In his own experience but one case had been successfully operated upon, although the operation had been many times essayed. Dr. Bramwell of Edinburgh had contended that his own very large experience had utterly failed to confirm the statistics given by others regarding the operability of brain tumors.

Dr. Starr closed the discussion. He did not feel like subscribing to the statement of the last speaker concerning the almost universal inoperability of brain tumors, for in his own series of 25 two had been distinctly localizable and operable. Accidental hemorrhage had caused death in one of these cases and the other ought to live the usual length of life with only slight disability. It was true a great many cases of brain tumor successfully operated upon were reported while many unsuccessful ones are not reported. Dr. Bramwell's statements were not borne out by his experience, for he had published 61 cases of brain tumor that had occurred in his own practice and of this number there had been at least 7 that could have been successfuly operated upon. Discouraging as the statistics were, it was right to operate upon every case of brain tumor having a distinctly localized and accessible tumor. He believed that if in the case presented by him at this meeting the operation had been consented to when first advised, the patient would have recovered without any disabliity. The conjugate deviation referred to by Dr. Schlapp might occur not only from a lesion of the sixth nerve nucleus, but from anything which interferes with the posterior longitudinal fasciculus between the sixth and third nerve nucleus.

SOCIETY OF DERMATOLOGY AND GENITO-URINARY SURGERY OF NEW YORK.

Stated Meeting, Held January 10, 1902.

The President, Robert Holmes Greene, M.D., in the Chair.

Keratosis Palmaris and Plantaris.—Dr. Lapowski presented a boy, aged seven years, with an eruption which appeared on both palms, without any prodromal symptoms, when he was three months of age. Several months later, before vaccination, the soles also became affected. The eruption on both palms and soles has since persisted. His family history is negative. When nine months old he was vaccinated. This was followed by an eruption which lasted several weeks, the palms and soles remaining the same and unaffected by the vaccinia. He has had none of the eruptive diseases of childhood. Last summer he had an acute attack of malaria which lasted six months and which was followed by swelling of both submaxillary glands. Two years ago the epidermis of both palms and soles was greatly thickened, forming a dense plate. The thickening was even, the surface was smooth, and there was no excessive sweating, or cracks. A delicate hyperemia extended beyond the border of the keratosis. Both soles were similarly affected. During the first years diachylon ointment and salicylic acid (10 per cent.) and ichthyol rubber plaster (20 per cent.) were applied externally and Thomson's solution of phosphorus (gr.

1/300 was given internally with no effect. During the past six months thyroid-extract tablets (gr. ijss, English make), one-half to three a day, have been given and diachylon ointment and lanolin have been applied. Within three months after the institution of this treatment remarkable improvement followed. Examination of the urine by Dr. Sondern showed a concentrated character, moderate indicanuria and a high nitrogenous output for a child of his age.

Dr. George T. Elliott said that nearly all cases are greatly benefited by salicylic acid and diachylon ointment. He had seen a complete cure, with no recurrences after two years, follow the use of salicylic acid and glyceride of lead in lanolin with 5 per cent. menthol added.

Dr. Goldenberg presented a case of lupus vulgaris disseminatus. The patient was a boy, six years old, the youngest of five children, who, like their father and mother, enjoyed perfect health. The patient never had symptoms of scrofulosis, but seems to have been rachitic, not being able to walk until three years of age, and since then has been mentally rather weak. The present eruption began about two years ago, following an attack of measles. It was first localized on the face and then spread over the body. There is a dull red patch on the right cheek the size of a ten-cent piece, soft to the touch, the center cicatrized, the border well raised above the surface. A number of small transparent, apple-jelly tubercles, the size of a pin-head, are found on the flexor surface of the arms. On the lower extremities and hands there are a number of patches similar to the one on the face, some of them scaly, others covered with crusts. A particularly large one, very firm and crusted, occupies the region of the buttocks, and on the right hand there are two tumors papillary in character. There are also some lupus nodules on the site of the vaccination mark, the boy having been vaccinated six months ago. There is a very small superficial ulceration on the mucous membrane of the right side of the lower lip.

Dr. Leviseur remarked that as regards therapeutics electrolysis would be most effective treatment. It causes but little pain, is followed by slight reaction and is very conservative in so far as it does not produce unnecessary destruction of healthy tissue. The operation is performed in the ordinary way, the needle being connected with the negative pole with a current of about thirty volts and two milliamperes. Dr. Cocks said that two years ago he had had the opportunity of seeing a similar case, which was treated by the X-rays with remarkable success. Dr. Goldenberg believes in the efficacy of good hygiene, the administration of cod-liver oil and creosote. He has at present at the Mt. Sinai Hospital another case of lupus which is being treated with the X-rays and which he expected to present at a future meeting.

Nævus Pilosus.—Dr. Lapowski presented this case and said that the child's mother in her third month of pregnancy was scratched on the cheek by a kitten. The nævus as seen on the child's face is upon the cheek and is covered with very fine gray hair, thus suggesting maternal impression. There were two other nævi upon the body. Dr. Otis is not inclined to believe in any stigmata of the kind mentioned. Dr. Cocks remarked that the fetus is already formed at the second month and any maternal impression must occur before that time. Dr. Leviseur asked for advice regarding the use of electrolysis, remarking that the case was not a good one for this method of treatment, because the hairs were very fine and situated closely together, so that one might as well destroy the nævus *in toto* which then would result in a very disfiguring scar.

Lupus Erythematosus Disseminatus.—Dr. Goldenberg presented this case. The patient is nine years of age, with a negative family history as regards phthisis. At the age of six years, the disease appeared on both ears which had recently been frostbitten. On the body it was first observed about a year ago. He is poorly nourished, cachectic, with a hoarse voice, coughs considerably; there is consolidation of the left apex. Both ears are enlarged, hard, red, infiltrated, uneven, and covered with firmly-adherent scales. There are a great number of small, punched-out scars distributed over the ears, and a small number of fresh lesions, namely, pustules, covered with yellowish crusts. The same punched-out white scars are found on both forearms and on the lower extremities. There are also some fresh lesions, deep-seated papules, some with a small vesicule formation in the center, some pustular, others with crusts, which when removed show a deep necrotic focus in the center. The picture of the disease corresponds in every detail to the one described by Boeck, who has called attention to the fact that even after the lesions are healed the diagnosis can yet be made from symmetrical, punched-out scars situated on the ears, arms and legs. The disease is probably identical with Barthelemy's folliculitis, Brocq's *folliculites disseminées symmetriques des parties glabres à tendances cicatricielles*, Bronson's acne varioliformis, Pollitzer's hydradenitis suppurativa destruens, and belongs to the tuberculides of the French.

Dr. George T. Elliott said that to-day everything is tuberculide; sixty years ago everything was scrofulide. The case shown by Dr. Bronson was exactly like the present one. It was investigated by Dr. Fordyce and was found to consist microscopically of granulomatous lesions. There was no history of tuberculosis. The history of the case pointed to an intestinal toxemia. It has been stated that 48 per cent. of the cases were in some way connected with tuberculosis, but what had became of the other 52? They developed under the same conditions, took the same course, and the clinical and pathological histories were absolutely the same. He advised dropping of the name of tuberculides and standing strictly on pathological grounds.

Dr. Whitehead said that Dr. Johnston had shown a similar case and called it necrotic granuloma. He thought the relation of tuberculosis with these cases was rather doubtful. Dr. Goldenberg's case was the only one he had seen in which there was a distinct history of tuberculosis and this was considered an interesting feature of the case.

Dr. Lapowski believes in the tuberculous origin of these tuberculides, a focus being present, if not in the lungs, in some other internal organs, such as the suprarenal glands, the pancreas, the thyroid, etc.

Addison's Disease.—Dr. E. L. Cocks presented a man, aged fifty-three years, who had a chancre in 1871 which lasted six months. He claimed that he had no other syphilitic lesion until 1879. Several dark spots appeared on different parts of his body and four months later the eruption became generalized. The spots disappeared and then reappeared at intervals. He did not consult a physician. From 1877 to 1892 he was perfectly well with a clear skin. During the early part of 1892 he was suddenly taken ill and was unable to leave the house for two months. His physician said he had some of the symptoms of typhoid fever, but admitted that the case was rather puzzling. Nine years of fairly good health followed. In October, 1901, he first noticed the present eruption. Dr. Cocks first saw the patient November 25, 1901, when he was complaining of irritability of the stomach, unaccountable languor and debility, loss of memory, and dyspnea. At two different examinations the pulse was found to run from 36 to 40 per minute. At times nausea followed vomiting and constipation alternated with diarrhea. He had

slight headache, tinnitus aurium at times, and insomnia most of the time. The pigment was found in the rete Malpighii. The mucous membrane of the mouth showed several pigmentary spots. The pigmentation was beautifully shown on the glans penis. He had no medicine for six years until time of observation. He has had arsenic for two weeks only. The speaker thought that from the symptoms, one could very readily make the diagnosis of Addison's disease. The patient has been receiving ninety grains of suprarenal extract a day and the eruption is rapidly clearing up and the other symptoms are also much better.

Vesical Calculus.—Dr. H. H. Morton presented two specimens. The first was removed from a boy, eight years of age. He had had pain and frequent micturition since he was a very small child. He was a masturbator. The urine was alkaline in reaction and contained pus. While the patient was under the influence of chloroform the searcher detected a stone. On August 20, 1901, a suprapubic operation was performed. After the operation the temperature ranged from 103° to 105° F. for ten days. The patient lost flesh and weight. A malarial taint was suspected and quinine was given, eight grains per day. The temperature began to go down and improvement in the symptoms followed at once. The wound closed four weeks after the operation. He called attention to the following points: (1) History of masturbation as a cause for stone; (2) examination under an anesthetic; (3) choice of operation; suprapubic chosen on account of the size of the stone; (4) continuance of high temperature, resembling the septic type, due to malaria.

The second specimen was removed from a boy, seven years of age. He had been idiotic since birth and he always had been troubled with dribbling of urine. He holds the penis because of the pain and when he lets go urine passes in a large stream and with force. At times the stream is shut off suddenly. Priapism was very persistent. Blood was not found in the urine, but there was pus present. December 17, 1901, a perineal lithotomy was performed. The stone was difficult to grasp on account of its size and the wound had to be enlarged to permit of its extraction. On December 28th the perineal tube was removed. January 4th the patient was up and running about the ward. The wound had not entirely healed and the urine still passed through it.

Dr. Greene referred to a report in which it was stated that large crushing instruments were admitted through the urethra in children aged three, four and five years of age. It has not been attempted as much in this country as abroad.

Dr. Otis said that it would certainly be difficult to crush a stone the size of the one presented in so young a child and that it would take a long time; yet, he believed that it could be done and without any laceration of the parts whatever.

Dr. Von Glahn stated that Dr. Marc, at Wildungen, did 400 operations every summer for stone, crushing them in every instance; the patients were out in four or five days.

Litholopaxy Under Cocaine.—Dr. Swinburne showed a specimen which he had removed from a patient at the Good Samaritan Dispensary under cocaine, the patient walking home after the operation. He was a man, sixty-two years old, who had been suffering from frequent and painful urination by day; it was not so frequent at night. Sometimes there was blood in the urine, which was cloudy. Examination with the Thompson searcher revealed the presence of a calculus in the bladder. He gave the man urotropin, and treated the bladder locally for two or three weeks hoping to get him in better condition. During that time he noticed that his urethra was quite tolerant to urethral instruments and the idea occurred to him that a litholopaxy could be successfully performed under cocaine. With this end in view he proceeded to get him used to the manipulations he would have to go through when he came to perform the operation. At each visit, twice a week, after washing out the bladder with a saline solution, he would leave in some of the fluid and insert the lithotrite and grasp the calculus. One day he discovered the presence of a second stone. After doing this he would remove the instrument and insert a No. 22 evacuating tube, attach it to a Chismore evacuating bottle and go through the manipulation of washing out the fragments. No reaction ever followed. This was done for three or four weeks. Early in June he attempted the operation. After washing out the bladder he withdrew the eye of the catheter into the posterior urethra and slowly instilled about six drams of a two-per-cent. solution of cocaine into the posterior urethra and bladder and left it in place. He then injected a syringeful of the cocaine solution into the anterior urethra and had the patient retain it; then, leaving the cocaine in the bladder he filled the latter with sterile saline solution. Unfortunately, he used a small Bigelow lithotrite and crushing was very slow; finally, it became jammed; he removed it and introduced a larger instrument, Keyes, which very quickly reduced the fragments of one calculus sufficiently to remove them. This took about three-quarters of an hour and, as the influence of the cocaine was wearing off, he did not attempt to crush the second stone. The patient suffered no pain and was sent home and told to go to bed for forty-eight hours. For four weeks he treated him in the same manner and the patient brought several small fragments which had come away when he urinated. In July he repeated the operation, removing the second calculus, using a moderate-sized Keyes instrument and thought he had removed every fragment. The patient felt so well he did not go to bed as ordered. No reaction followed and in a week he returned to the Dispensary. His urine was clear, the intervals of urinating were normal, and he reported himself as being thoroughly well. On October 30th the patient returned saying that he was again suffering from pain and frequent urination and with cloudy urine. The searcher detected nothing, but with the evacuator and wash-bottle he obtained a small calculus. Since then the patient has been perfectly comfortable.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held January 4, 1902.

The President, Howard Lilienthal, M.D., in the Chair.

Acquired Dextrocardia.—Dr. Charles Schram presented a patient whose heart is in the right cavity of his chest, apparently as the consequence of a prolonged process of tuberculous tissue destruction and consequent pulmonary contraction. The slow-running tuberculous process resulted in the so-called cirrhotic lung, which in retracting drew the heart with it, pleural and pericardial adhesions being the intermediary factors aiding in the displacement. The patient, twenty-four years of age, was born in Germany, but has been in New York since the age of five. He is a draughtsman of metal ornaments, who has never smoked and who uses stimulants only moderately and with his meals. He denies venereal history. Both his parents are partial deaf mutes and a brother is also a deaf mute. This is evidently an hereditary condition. There is, however, no tuberculous history in the family. At the age of four the patient had measles followed by inflammation of the lungs and some months later he developed scarlet fever. When eight years of age, he had another attack

of inflammation of the lungs, which lasted for some weeks and seems to have ended, according to the history, by lysis and not by crisis. He considers this to have been his last serious attack of illness. Five years ago he had acute articular rheumatism, the joint symptoms being confined to the right knee. He was in bed only for three days, but does not seem to have entirely gotten over his arthritic inflammatory condition. He has had joint pains in his knee ever since, whenever the weather is changeable.

Pulmonary Symptoms.—Ever since his attack of pneumonia some sixteen years ago he has had a tendency to recurrent bronchial attacks. There was scarcely a year that he was free from a series of these. They usually began in the late fall and lasted for some months. During the first weeks of the illness he coughed up thick, abundant and somewhat greenish-yellow material. The expectoration gradually diminished after a month or so and with it the inclination to cough, but in milder form his cough persisted during the whole winter. He has never expectorated blood. He never suffered from night-sweats and does not seem to have had the chilly sensations or the tired feeling that accompanies febrile conditions. During these bronchial attacks he had general physical and mental depression. Anorexia was usually marked, especially at the beginning. Since 1893, however, his attacks have not interfered with his studies or with his occupation, but up to within a year or two he has coughed more or less all the year round. At present, except for rheumatic pains in various joints for which he has come for treatment, he considers his health reasonably good. He has no dyspnea on exertion, except on climbing a number of stairs, when he also has moderate palpitation of the heart. This palpitation is felt on the right side. He dances regularly twice a month, takes great pleasure in the exercise, and finds no special inconvenience in it.

Physical Condition.—His chest is asymmetrical. The left side is deeper than the right, the right side inclining inward where the ribs join the middle third of the spine. There is some flattening below the clavicle. The right shoulder is lower than the left and the right scapula protrudes. The measurement of the left chest in the nipple line at the lower end of the scapula is sixteen inches. The measurement of the right chest at the same line is fifteen inches. The left chest moves more with inspiration than the right. Vocal fremitus is more marked on the right side than on the left, both in front and posteriorly. A diffuse wave-like impulse is noticeable in the fifth right intercostal space about two inches below the right nipple. It is not easy to see unless carefully looked for, but can be felt very well with the palm of the hand. The left chest is resonant, the right chest dull and in part flat in front and posteriorly. There is bronchial breathing, bronchophony and whispering bronchophony to confirm the other signs of pulmonary consolidation on the right side. On the left the respiratory murmur is puerile, showing that this lung is doing compensatory work. No râles are to be heard and the area of cardiac dulness is not determinable, because of the irregular percussion sounds that are obtained over the consolidated lung.

Heart Sounds.—The first sound of the heart seems loudest in the fifth intercostal space, two inches below and one inch to the left of the right nipple. The aortic sound is best heard in the second intercostal space two inches above the right nipple. The pulmonary second sound is best heard at the junction of the right border of the sternum and the third rib. There are no suspicious signs in the heart sounds and certainly no adventitious sounds. The cardiac rhythm is undisturbed and the general heart condition seems excellent. It seems clear that there is at present a cirrhotic lung resulting from repeated acute exacerbations of chronic pulmonitis with perhaps complicating pleuritis of probable tuberculous origin. The condition produced is so serious that it is a little hard to understand how they could have proceeded to the production of so much pathological change without inducing more serious symptoms. It is even a little surprising that the patient has survived them.

Etiology of Dextrocardia.—The late Dr. Loomis enumerated the mechanical elements concerned in producing dextrocardia as follows: There is, first, the restraining forces of the cardiac attachments at the base of the heart; second, the density and resistance of the surrounding tissues; third, the weight of the heart, and, fourth, pressure and traction. All of these elements seem to have been more or less concerned in the case presented. The retracting lung on the right served as the most important displacing factor. After this came the compensatory expansion of the left lung which not only displaced, but turned the heart on its long axis, the organ revolving on its basic attachments as a pivot. According to Osler the abdominal organs are transposed in 70 out of 78 cases of dextrocardia. As the dextrocardia in this case, however, was acquired late in life, there is not any transposition of abdominal viscera. The most interesting feature of the case is that, notwithstanding the great displacement of the heart, there are no symptoms referable to this fact in the patient's general condition. It is hard to understand how so important an organ can be pulled and twisted in the way that has evidently happened to this one and yet produce no annoyance that would call the patient's attention to the condition.

Question of Purulent Effusion.—In discussing Dr. Schram's case, Dr. Daniels said that it seems not impossible that there should have been in this case a purulent pleural effusion following one of the pneumonias and probably due to the pneumococcus. Such cases sometimes occur after children's pneumonias and are evacuated spontaneously through the lung. After these purulent effusions there is a marked tendency to the formation of adhesions and to contraction of the lung. This contraction is a much more active process than the so-called tuberculous cirrhosis of the lung and accounts much better for the serious alterations that have taken place in the tissues in this case. It seems doubtful if any mere cirrhotic tuberculous process would cause as much displacement as has occurred in this case. There is, moreover, in the history of the case an absence of the severe symptoms that would accompany so serious and important a tuberculous process as this. The patient had a tendency to bronchitis every winter, but this could be accounted for much better, perhaps, by the lowered vitality of his pulmonary tissues as a consequence of the lack of respiratory function than by a constantly active tuberculous process.

Displacements by Effusion.—In closing the discussion Dr. Schram said that displacements of the heart frequently occur because of pleural effusion. As is well known, however, these are not permanent. In the present case there is no sputum, the examination of which would disclose the presence of tubercle bacilli and make the diagnosis of pulmonary tuberculosis absolute. There is nothing in the history of the case that would actually demonstrate that a tuberculous process had been at work. This seems, however, the most reasonable explanation of the cirrhotic contractile condition that has ensued and has left one of the lungs almost completely useless for respiratory function.

Tuberculosis.—Dr. F. H. Daniels then read the paper of the evening. This will appear in a subsequent issue of the MEDICAL NEWS.

Hospital Infection.—In discussing Dr. Daniels'

paper, Dr. John B. Walker said that according to the provisions of the new charter for Greater New York no cases of tuberculosis are to be treated at Bellevue after February 1, 1902. This is welcome news to medical men, for in recent years there has come the realization of how serious the infective power of the presence of tubrculous patients may be, when other patients are in the susceptible, run-down condition, so usual in hospital practice. There is no doubt that tuberculosis has been communicated at Bellevue. Last year one of the resident physicians died of phthisis contracted in the Hospital and patients have frequently been admitted without any trace of pulmonary disease who have developed the affection before being long in the Hospital. There is special danger, of course, for patients already suffering from pulmonary affections.

Tuberculosis Communication.—Dr. Potter said that there is no doubt that tuberculosis is communicated at times to other hospital patients. He has himself seen a case of acute tabes enter the City Hospital without any trace of pulmonary affection and after four weeks suffer from slight hemorrhage. This was followed later by other symptoms of tuberculosis and a typical case of the disease developed. The dangers in hospitals are especially concerned with the dust in the wards. It is practically impossible to guard crowded hospital wards sufficiently in this matter to prevent danger of dust contamination. Flying particles bearing bacilli inevitably find their way into the air of the wards and are breathed in by susceptible patients. Many series of bacteriological observations have been made, showing the dangers in this matter. The hospital crowding and the mingling of patients, that render these dangers so serious, must, if possible, be prevented.

Successful Treatment of Tuberculosis.—Dr. Schram said that undoubtedly excellent results can be obtained in the treatment of tuberculosis. The disease is by no means the incurable one that it has been considered. The reported good results in the German sanatoria were at first looked upon with incredulity. The reported cures are, however, no matter of surprise to those who have visited these German institutions. The sanatoria for the tuberculous, for instance, in the Black Forest, are so situated as to provide a constant invitation for patients to go out into the open air. The level walks and the forest paths, with the inviting surroundings, are a constant source of pleasure for the healthy and the sick. There is no need for patients to be driven out, nor urged very much to be in the open air. Simple directions and the inviting surroundings soon do the necessary work and the good effects of being out in the open air almost constantly soon make themselves felt so much on the patient and in such a way as to need no further urging to secure their being out.

Tuberculous Houses.—Dr. Reynold W. Wilcox said that he had recently been engaged in the study of the charts of the Board of Health of New York City which are supposed to show that tuberculosis is worse in certain houses and that where the disease has occurred in a house other inmates are liable to be infected even though they may be no relative of the preceding patient and have had no intercourse with him. In a word, it is said that statistics show that houses become contaminated with the disease to such a degree as to be capable of conveying it to successive tenants. Dr. Wilcox has not found that this contention of the health authorities is borne out by the actual statistics. At times, it is true, deaths from tuberculosis in the families of successive tenants can be found, but after a series of deaths there will then be a cessation of the spell and the contamination, if any were ever present, seems to die out. In a word, it is not a law of disease, but a chance of statistics that seems to be at work in the matter. Dr. Wilcox said that the worst crowded houses in the city are those in which the Chinese live, and yet it is generally recognized that there is no special incidence of tuberculosis among the people of that nationality. It seems clear, then, that it is not crowding of itself, but the presence of other tuberculous patients in the crowded houses that causes rapid spread of the disease. In one case in which a series of deaths had taken place in a family in a crowded apartment house, Dr. Wilcox suggested removal to the upper floor of the same house. Five brothers and sisters had died in the family previously. Two sisters suffering from the disease at the time of the removal were cured and the remaining sister did not develop the disease.

Importance of Sunlight.—Undoubtedly, sunlight is a very important therapeutic agent in the treatment of tuberculosis. Dr. Wilcox's experience would seem to show that the upper floors of houses, because of their greater flooding with sunshine, are less liable to be fostering-places for the disease than the lower and darker floors. This curative property of sunlight and its prophylactic effect are not the discovery of the present generation, however. Dr. Bowditch of Boston, in 1850, insisted very much on the fact that sunlight was the most important natural agent for the treatment of tuberculosis and the only therapeutic agent available for the treatment of all forms of the disease and sure to do them all good.

Tuberculous Peritonitis.—Dr. William R. Coley said that the main purpose at the present moment must be to teach the laity that tuberculosis is not only not incurable, but that the disease if placed under proper conditions has a definite tendency to cure. Some very interesting reflections on this matter are to be found in the history of surgical intervention in cases of tuberculous peritonitis. Professor Koenig in 1884 reported cure of peritoneal tuberculosis by simple abdominal incision. Since then surgeons throughout the world have been performing laparotomy for the condition. Most of them have reported many good results. A recent article by Fenger in the "Annals of Surgery" reviews the benefit of surgical intervention in these cases. After following cases for a number of years, some of them operated upon and some of them left untouched, Fenger concludes that absolutely no good has been done by the operation. A similar conclusion has been forming in the minds of many surgeons for some time. Fenger says that surgeons may be thankful for the justifiable opportunity that has been afforded them to examine tuberculous processes on the peritoneum by direct inspection, but they must now hand these cases back to the physician.

At Home or Abroad.—Dr. Howard Lilienthal said that it is always a sin to send tuberculous patients away from home unless they can be sure to be at least as comfortable in their new quarters as they were at home. This is, of course, not true in the great majority of cases. To suggest to patients in ordinary circumstances that they must leave home is usually to make them dissatisfied, but not to do them any good. Now that we have come to realize that climate of itself means much less in the treatment of tuberculosis than was formerly thought, it becomes still more clear that patients must not be advised to leave home without a thorough consideration of all the circumstances of their cases.

Distribution of Tuberculosis.—In closing the discussion Dr. Daniels said that there are many ways that ordinarily pass unnoticed in which seeds of infection may be carried from place to place. Flies, for instance, have been known to carry virulent bacilli from one place to another. Such material as tuberculous sputum is apt

to be attractive to flies. They light on it and then carry on their legs to neighboring food material extremely dangerous germs. Dr. Daniels finds it difficult to understand that tuberculosis should die out in tenements where it has once secured a foothold. It is possible, however, that a given variety of tubercle bacillus may, after a certain time and under a certain condition, fail in its virulence. Such an experience is not unusual in the laboratory study of tuberculosis. It seems much more likely, however, that the new families that move in and fail to have cases of tuberculosis are specially resistant to the disease and that this accounts for the gap in the statistics.

BOOK REVIEWS.

AN EXPERIMENTAL AND CLINICAL RESEARCH INTO CERTAIN PROBLEMS RELATING TO SURGICAL OPERATIONS. An Essay Awarded the Alvarenga Prize for 1901 by the College of Physicians of Philadelphia. By GEORGE W. CRILE, A.M., M.D., Ph.D., Professor of Clinical Surgery, Medical Department, Western Reserve University; Surgeon to St. Alexis Hospital; Associate Surgeon to Lake Street Hospital, Cleveland. J. B. Lippincott Company, Philadelphia.

THIS book for directness and brevity is certainly a profitable addition to any medical library. As its title indicates, it is a report of a long series of experiments followed by clinical observations into clinical operative problems.

In an excellent and scientifically accurate manner it treats first of the methods of annotation and investigation, so that the reader is fully aware of the basis of the results reached. The problems, the solution of which is attempted, comprise the following: On the effect of severing, and of mechanical irritating the vagi; the research into the effect of intravenous injection of saline solution; the physiologic action of cocaine and eucaine; the effect of temporary closure of carotid arteries. Each of these problems is handled, first, with preliminary remarks and a review of literature, next, with an account of experiments followed by a summary of experimental evidence, and, finally, with a statement of the clinical application of the results. Thus, it will be seen that no pains have been spared to weigh each question step by step until a definite conclusion was reached.

A MANUAL OF THE PRACTICE OF MEDICINE. By FREDERICK TAYLOR, M.D., F.R.C.P., Senior Physician to and Lecturer on Medicine at Guy's Hospital, London. Sixth Edition. P. Blakiston's Son & Co., Philadelphia.

THIS is the sixth edition of Dr. Taylor's work. The preface to the first edition was written in January, 1890. It has evidently won for itself many friends in these eleven years. The secret of the popularity of Dr. Taylor's book seems to be its thoroughly practical character and its inclusion in comparatively small space of an excellent digest of what is useful in medicine. In the first edition Dr. Taylor announced his intention of devoting most attention to the description of symptoms, to diagnosis, to prognosis and to treatment, feeling that they are the divisions of the subject which answered to the idea of practice. Etiology and pathology are also considered, but the latter is not so fully dealt with as in works devoted especially to it.

In the present edition the author announces that the subjects most fully revised are malaria, plague, encephalitis, leucemia and the examination of the blood. Certain subjects hitherto untreated in the work find a place in this edition. Among them are the interesting titles, myasthenia gravis, paramyoclonus multiplex, acroparesthesia and acrodactylia, and polyorromenitis. This last term is a synonym for polyserositis. Both are names given to the condition of simultaneous inflammation of two or more of the four great serous membranes—pericardium, pleuræ and peritoneum—an association to which attention has been especially called of late by Italian writers. The book is printed in England and so, perhaps, the omission of some of these new terms from the index should not be laid at the door of the American publishers.

THE STANDARD MEDICAL MANUAL. A Handbook of Practical Medicine. By ALFRED S. BURDICK, M.D., Editor of Medical Standard; Junior Professor of Practice in the Illinois Medical College. G. P. Englehard & Co., Chicago.

THIS is a very handy reference book of practical medicine with the subjects arranged alphabetically, thus facilitating ready consultation. It is not ambitious, for its name "standard" applies only to the fact that its author is the editor of the "Medical Standard" and that the book is issued in connection with the medical journal. The work is of very practical character and is calculated to be eminently helpful, especially to the busy general practitioner who does not want a treatise, but suggestive points at a moment's notice. The volume is very presentable in appearance and will doubtless find a place on many consultation shelves, not among the learned tomes that collect dust and are opened a few times a year, but among the books that are constantly at hand for ready reference.

TYPHOID FEVER AND TYPHUS FEVER. By Dr. H. CURSCHMANN, Professor of Medicine, Leipzig. Edited with Additions by WILLIAM OSLER, M.D., Professor of the Principles and Practice of Medicine, Johns Hopkins University, Baltimore, Md. Authorized Translation from the German, Under the Editorial Supervision of ALFRED STENGEL, M.D., Professor of Clinical Medicine in the University of Pennsylvania. W. B. Saunders and Company, Philadelphia and London.

DR. STENGEL'S declaration in the preface to the first volume of the translation of the Nothnagel series that the excellence of the monographs issued under the editorship of Professor Nothnagel has been recognized by all who are sufficiently familiar with German to read his works will be re-echoed by all students of medicine. They will also be glad to think that the opportunity is to be provided even for those who do not read German to enjoy and profit by the greatest of modern encyclopedias of medicine.

The best index that the Nothnagel series is to be worthily done into English is afforded by the fact that this first volume has for its editor Professor Osler and that he has been encouraged to make such additions to Professor Curschmann's monograph as will bring the subject up-to-date and make it more helpfully practical for American physicians. For those who know Professor Osler's thoroughness there will be no need to add that his work as editor has been taken seriously and that some of the additions constitute important features of the American translation. If this volume is a fair sample of those that are to follow, then the English-speaking medical profession may well be congratulated on the fact that editors and publishers are a unit in the effort to give them what is best and latest in medicine in this work.

Some of Professor Osler's additions made with Professor Curschmann's consent deserve to be mentioned. The chapter on the bacteriology of typhoid fever has

been thoroughly revised and new material added. The distribution of the typhoid bacilli, especially in the urine, in the rose spots, and in the blood, has been noted. The literature on the localized lesions due to the bacillus, particularly of the bones, meninges, heart, pleura, bladder, and so forth, has been carefully revised and brought up to date. Thayer's exhaustive study of the state of the blood has been utilized. The surgical complications of the disease have been very fully considered with the aid of Keen's monograph. The chapter on perforation and peritonitis has been rewritten, as has also the section on the hepatic complications of typhoid fever.

These constitute only some of the American additions. Professor Curschmann's monograph originally was a most exhaustive study of typhoid fever, thoroughly practical in character. The additions have been necessitated by work done since Curschmann's original publication and by so much the American surpasses the German edition. It is evident that no effort has been spared by the American editor to let nothing pass that might be of practical interest in the recent literature of typhoid fever.

The publishers' work in the volume has been very commendably done. The colored plates illustrating the characteristic eruptions of typhoid and typhus fever bring out very well both what is similar and what is differential in the two exanthems. This is manifestly the first volume of what is to form a striking contribution to medical literature in English. The publishers' plan of selling each volume separately and not insisting on a subscription to the whole work in order to obtain volumes of interest is especially to be commended. Medical publishing in America has reached the place where subscriptions are not necessary to insure that large medical works shall afford due returns.

Phototherapy. By Prof. Niels R. Finsen of Copenhagen. Translated from the German Edition and with an Appendix on the Light Treatment of Lupus by James H. Sequeira, M.D., Lond., M.R.C.P. Edward Arnold, London.

This work consists of Finsen's three papers published at different times on "The Chemical Rays of Light and Smallpox," "Light as a Stimulant," and "The Treatment of Lupus Vulgaris by Concentrated Chemical Rays."

Prof. Finsen's work is almost too well known to need much comment. Although the Nobel prize was not, as was prematurely announced, conferred on him, his discoveries in phototherapy are some of the most practical advances made in medicine during this last decade.

In these three papers can be seen the gradual development of his ideas with regard to light as a therapeutic agent. At first, in smallpox his investigations were tentative, later came the assurance that in light there was a great remedial agent. The book represents a landmark in medicine and doubtless will be one of the little books referred to by future generations as an original work well worthy of preservation.

A Manual of Clinical Laboratory Methods. By John B. Nichols, M.D., in charge of Clinical Laboratory, Garfield Hospital; Hematologist to Columbian University Hospital; Professor of Normal Histology in Medical Department of Columbian University, Washington, D. C. William Wood & Co., New York.

The importance of laboratory methods as aids in the diagnosis of disease has called into the field an army of workers whose investigations, being published in numberless medical journals, are not readily available for the student and general practitioner. Books which present such material in a form for ready reference, with the proper selection of those methods which have stood the proof of clinical tests, are therefore of value.

The work in question is a book of this class and its purpose can best be stated in the words of the preface: "To present in practical and systematic form the most important laboratory methods employed in clinical medicine. Covering established methods, it cannot profess to present much that is new or original, or to cover a field not already occupied, but must base its *raison d'être* in the collection of numerous technical procedures within a small compass and presentation of the subject in a manner convenient and clear to students and practitioners of human medicine."

A perusal of its contents shows that these ideas have been well carried out. The subject-matter is condensed, but this does not prevent the mention of details that are either new or necessary to the general understanding of the topic in question. The author includes in his book the consideration of the blood and the technic of its examination, the stomach and its contents, the feces and intestinal discharges, the sputum, and the urine. Pathological fluids, calculi, and parasites are also treated and chapters are devoted to clinical bacteriology and autopsy methods. In each examination the well-recognized methods are arranged in such a manner as to form a good working manual. The one fault to be found in the make-up of the book is its lack of sufficient illustrations, which in a work of this kind are most essential.

The Mental Functions of the Brain. By Bernard Hollander, M.D., Freiburg, M.R.C.S., L.R.C.P., London. G. P. Putnam's Sons, New York and London.

This is an interesting work by one who has made a wide search of literature. Many hundreds of clinical histories are collected and conclusions reached, which if not entirely sound, are suggestive and almost stimulating.

Had the author been less disposed to find fault with the honest, although perhaps incorrect, work of others, we should feel more tolerant toward the attitude he himself would adopt, but there is so manifest an air of special pleading of his own that one is less liable to pay attention to the conclusions there perhaps is warranted.

Phrenology in its modern dress will need a more logical and modest exponent if it would expect a hearing.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MedicalNews *will shortly appear.*

The Practical Medicine Series of Year-Books. Vol. I. General Medicine. By Dr. Frank Billings. 12mo, 270 pages. The Year-Book Publishers, Chicago.

The Practical Medicine Series of Year-Books. Vol. II. General Surgery. By Dr. J. B. Murphy. 12mo, 515 pages. The Year-Book Publishers, Chicago.

Studies in Physiological Chemistry. Reprints of Studies from Sheffield Scientific School. 1897-1900. Edited by Dr. R. H. Chittenden. 8vo, 424 pages. Charles Scribner's Sons, New York.

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ORIGINAL ARTICLES.

THE SURGICAL TREATMENT OF ASCITES DUE TO CIRRHOSIS OF THE LIVER.[1]

BY GEORGE EMERSON BREWER, M.D.,

OF NEW YORK;

INSTRUCTOR IN SURGERY, COLLEGE OF PHYSICIANS AND SURGEONS; JUNIOR SURGEON TO THE ROOSEVELT HOSPITAL, AND ATTENDING SURGEON TO THE CITY HOSPITAL.

IN RESPONSE to an invitation from the Chairman of this Section, I will present for your consideration and discussion this evening a brief review of the facts which have been gathered during the past five years bearing upon the surgical treatment of cirrhosis of the liver.

Cirrhosis of the liver is admitted by all to be an incurable disease, ascites, enlargement of the spleen and hemorrhages into the alimentary canal constituting the terminal symptoms of this condition.

Dr. W. Hale White, in Guy's Hospital Reports for 1892, from an analysis of 34 cases of ascites which were followed to the end, and in which autopsies were made, concludes that the occurrence of ascites in cases of uncomplicated cirrhosis of the liver is of the gravest prognostic importance, the average duration of life being only about eight weeks after the first tapping; the patients who survived numerous tappings were generally found at the autopsy to have lesions other than those of uncomplicated cirrhosis. This view is also confirmed by H. Campbell Thompson in an article which appeared in *The Lancet* for July 20, 1901, in which as a result of 18 autopsies he concludes that cases of cirrhosis which survive numerous tappings are complicated by perihepatitis, chronic peritonitis, or some other pathological lesion which acts as a causative factor in the production of the ascites. Without quoting other confirmatory opinions it is safe to assume that a patient with cirrhosis of the liver who reaches the stage of ascites has before him a very short lease of life. While medical treatment can do much to relieve the distressing symptoms occurring in the early stages of this disease and judicious care and medication may perhaps in certain instances arrest its progress, in the presence of these grave terminal symptoms no drug or method of medical treatment is of any value whatever in averting the inevitable fatal termination.

Apparent recoveries occurring after the appearance of ascites have, however, been occasionally reported; but such recoveries are so rare that they may be justly regarded as medical curiosities. Autopsies, in cases of this kind, almost invariably show the presence of dilated, anastomosing branches between the portal and systemic venous circulation. The normal anastomoses between these two systems have been described by Sappy to be veins passing from the upper surface of the liver, between the two layers of the coronary ligament, to the under surface of the diaphragm, anastomosing there with the radicals of the phrenic vein, one or more veins accompanying the round ligament of the liver anastomosing with the internal mammary and deep epigastric veins and also veins in the regions of the retroperitoneal, esophageal, and hemorrhoidal plexuses.

Telma of Utrecht, after a number of postmortem observations, conceived the idea of increasing this anastomosis by creating adhesions between the surface of the liver and the diaphragm, the surface of the spleen and the adjacent parietal peritoneum, and between the great omentum and the anterior abdominal wall.

The first operation of this kind was performed by Vandermeule in 1889, and consisted in opening the abdominal cavity, evacuating the fluid and stitching the omentum to the anterior abdominal wall. The patient died of shock. The second operation was by Schelkly in 1891, same procedure. His patient died on the fourteenth day. A third case, operated on by Lens, recovered from the operation but showed no improvement in the symptoms.

The next report on the subject was furnished by Mr. Rutherford Morison of Newcastle-on-the-Tyne, who, unaware of the suggestion of Telma or of the work of the Continental surgeons, after numerous postmortem observations determined to favor Nature's method of cure by a far more complete operation than any previously employed. He proposed the following procedure: Under general anesthesia open the abdomen and evacuate the fluid, then rub the upper peritoneal surface of the liver and the under surface of the diaphragm with gauze sponges until raw, freely-bleeding surfaces are produced. The same procedure should be carried out on the outer surface of the spleen and its adjacent peritoneal surface. Finally, stitch the great omentum to a freshened peritoneal surface on the anterior abdominal wall. A glass drain should be introduced to the lower part of the pelvis through a separate suprapubic wound. The upper wound should then be closed and dressings applied. The fluid which collects in the pelvis should be frequently pumped out through the glass drainage-tube for a week or ten days until the daily secretion is markedly diminished. The tube may then be removed and the wound allowed to heal.

The first case in which he carried out this procedure was a doubtful one, the diagnosis of cirrhosis not being established. The patient recov-

[1] Read before the New York Academy of Medicine, Thursday Nov. 21, 1901.

ered from the operation, but there was no improvement in her symptoms and she died nineteen months later. His second case was a brilliant success. The patient recovered from the operation and was apparently completely restored to health. She lived two years in comfort and died from an attempt to repair the ventral hernia which followed the first operation. A very complete autopsy was made, a description of which I will give in the author's own words:

"At the postmortem Mr. W. G. Richardson removed the whole of the abdominal viscera and the parietes excepting the skin. He then injected the whole from the trunk of the portal vein. The liver, spleen and intestines seemed to be attached to the parietes chiefly by small, band-like adhesions. Many of these seemed to contain little except a blood-vessel, and in several of them such a vessel was four inches in length. The omentum was also firmly adherent to the abdominal wall by strong bands. In all of these adhesions innumerable injected vessels are readily seen passing from the omentum and viscera to the parietes. Many of them are fully the size of the radial artery. This specimen establishes our belief that an efficient anastomotic circulation can be brought about by operation. There can be no doubt that this patient was cured of ascites and that useful life was prolonged for her for two years by the operation."

In a subsequent article which appeared in *The Lancet* for May 27, 1899, Morison reports two additional cases, one not surviving the operation; the other was completely successful, the patient being alive at the end of two years without ascites.

While Morison's operation was not the first, as the idea was original with him, and as his method differed essentially from those of the Continental surgeons, and as he succeeded in curing two out of his four patients, in one instance being able years afterward to secure an autopsy which conclusively demonstrated the correctness of his views, he is, I think, entitled to the credit of establishing this new method of treatment.

As a result of the publication of Morison's successful operations there was awakened a very considerable amount of professional interest, and during the past three years quite a large number of articles on the subject have appeared and numerous cases involving operation have been reported by various surgeons.

It is to be regretted that in many of these reports little care has been taken in giving details in regard to the clinical history or methods of operation which would enable us to form more definite ideas as to the causes of mortality and the conditions which favor the success or failure of the procedure. As notable exceptions to this may be mentioned the report published by Dr. Robert F. Weir in the *Medical Record* for Feb. 11, 1899, in which he gives us not only a clear and comprehensive description of his case, but also a masterly review of the literature of the subject which had appeared up to that time; the article by Dr. F. Tilden Brown in the Medical and Surgical Report of the Presbyterian Hospital for 1900, in which he records the complete history of a patient cured by operation and also the paper by Packard and Le Cont published in the *American Journal of the Medical Sciences* for March, 1901. In this latter communication 22 cases are reported, from which the authors conclude that the operation is not necessarily accompanied by a high rate of mortality, and encourage us to believe that recovery, at least from the ascites, may be expected in a fair proportion of cases.

Adverse criticism, however, has not been wanting. The most recent contribution to that side of the subject is the article by Dr. H. Campbell Thompson, published in *The Lancet* for July 20, 1901. In this the writer states that it is his opinion that in no case has ascites due to uncomplicated cirrhosis been cured by operation, but that the successes have been in cases in which the ascites was due to some complicating lesion, such as perihepatitis or chronic peritonitis. While such an opinion unsupported by clinical or pathological facts should not influence us in our judgment regarding the value of this operation, it is to be regretted that in the majority of reported cases no data are given which would enable a reviewer successfully to controvert such a statement. It is therefore suggested that in order to arrive at definite and accurate conclusions in regard to the value of this operation, future reports should give us the age and sex of the patient, history of syphilis, tuberculosis, alcohol or peritoneal inflammation, duration of ascites, number of tappings, condition of heart, lungs and kidneys, exact condition of abdominal viscera observed at operation, anesthetic used, method and duration of operation, method of drainage, subsequent treatment, immediate and remote result.

The analysis of 40 or 50 cases fully reported in this manner would enable us to estimate justly the value of this procedure and form definite ideas regarding its mortality, the most favorable time for surgical intervention, as well as the most approved methods of procedure.

In the writer's opinion the operation is still in its experimental stage. Sufficient data are not at hand to enable us to form definite and lasting conclusions. At present there is apparently a high rate of mortality, due, I believe, to the fact that the majority of physicians are unwilling to advise this method of treatment except in cases in which all hope has been abandoned.

In the accompanying table I have endeavored to present the important facts as far as I have been able to obtain them in 60 cases. In many of the reported cases the histories are so imperfect that few facts of value could be gleaned. A large number of these cases have never before been published but have been obtained by the writer by personal communication. I have desired in the arrangement of this table to suggest a plan of

reporting these operations which will bring out the salient facts just referred to and which will enable us later, when a sufficient number of cases have been collected, to estimate justly the real value of the procedure. I desire before presenting this table to report briefly my own experience in this operation, which, although somewhat discouraging, has not convinced me that the operation may not be of value in more carefully selected cases.

Case I.—A woman, aged fifty-six years, admitted to the medical department of the City Hospital in the spring of 1899 suffering from ascites. There had been a prolonged history of alcoholism; no definite syphilitic history. Previous to the development of the ascites there had been a long period of ill health, the symptoms of which were gastric disturbances, shortness of breath, anemia and general weakness. She was under observation for several weeks, during which time she was tapped on one or more occasions. The urine was abundant, containing a trace only of albumen and hyaline casts.

Operation under ether anesthesia. Median incision in upper segment of abdomen. Large amount of fluid evacuated. The upper surface of the small, nodular liver and the outer surface of the spleen, together with the opposing parietal peritoneal surfaces, were vigorously rubbed with sterile gauze until they bled freely. The parietal peritoneum on each side of the abdominal wound was also rubbed in the same manner, and the omentum drawn down and firmly held in contact with the denuded surface by means of sutures which closed the abdominal wound. A smaller abdominal incision was next made just above the pubes and the rest of the fluid siphoned out. A glass drainage-tube was introduced through the lower opening into the pelvic cavity. The wounds were dressed separately. Two special nurses were detailed to the care of this case, whose duty it was to remove the lower dressing every hour during the day and every two hours at night, and with a pledget of sterile gauze to suck up all the fluid which would accumulate in the pelvis, introduce a dry piece of gauze into the glass tube and apply fresh sterile dressings—the procedure to be carried out with gloved hands and under the strictest aseptic precautions.

Considerable shock followed the operation and the patient was carried through the night only by the most energetic stimulation. The following day, however, she rallied somewhat but seemed exhausted, and although the pulse and temperature was not elevated she seemed seriously ill. There was practically no secretion of urine, and she died two days later in a condition of typical uremic coma.

Case II.—Operated upon at the City Hospital about the same time. A woman, forty-eight years of age, thin, anemic, and weakened by prolonged illness and dissipation. History of alcoholism and other vices for many years. Duration of ascites, two to three months. The operative procedure was practically the same as in the first instance, with the exception that chloroform was used instead of ether. The operation in this instance was somewhat prolonged, owing to difficulty in siphoning out the large amount of fluid from the pelvis, and also from the fact that in rubbing the parietal peritoneum and the surfaces of the liver and spleen there was an abundant oozing of blood which necessitated a good deal of subsequent sponging. All this delayed the operation, and the patient, having lost a considerable quantity of blood, collapsed on the table. She recovered, however, under vigorous hypodermic and rectal stimulation, only to collapse again after her return to the ward. From this she did not rally. She died within the next twenty-four hours.

Case III.—An Italian man, about forty years of age, who had been only moderately alcoholic and without history of syphilis, was admitted to the City Hospital in the winter of 1900. His general condition was fair; there was no albuminuria, but the abdomen was greatly distended. He had not been tapped, and was thought to be a favorable subject for operation. Chloroform was employed and the same procedure carried out as in the previous cases.

He bore the operation well and recovered nicely from the anesthetic. The following day his condition seemed very satisfactory; the pulse was of good quality and there was only a slight elevation of temperature. He seemed bright and cheerful. This continued for three days, when he began to vomit and complained of pain in the abdomen and general feelings of illness. The temperature rose. There was tenderness over the entire abdomen with slight distention and muscular rigidity. The bowels moved slightly as the result of enemata, but no cathartics were retained. The patient became delirious, the urine scanty and albuminous, and he died at the end of five days of peritoneal sepsis.

Case IV.—That of a man, about forty years of age, who was admitted to the City Hospital in January, 1901. He had a cough and had been feeling ill for several months, and of late had noted a gradual enlargement of the abdomen. There was an evening rise in temperature and an occasional night sweat. Examination revealed the presence of a tuberculous process in the right apex and a marked distention of the abdomen which precluded the possibility of obtaining any data as to the size of the liver and spleen. His case was regarded as one of tuberculous peritonitis and an operation proposed. He readily consented as he was failing rapidly in flesh and strength.

Under chloroform anesthesia an incision was made in the median line of the abdomen, when it was quickly seen that the case was one of cirrhotic ascites. The liver was small, hard and nodular, and the spleen enormously enlarged. As he did not bear the anesthesia well, the fluid was quickly evacuated, the upper surface of the liver and the adjacent parietal omentum were quickly rubbed with gauze, and the omentum

Operator.	Sex.	Age.	History of Alcohol.	Syphilis. Tuberculosis Peritonitis.	Duration of Ascites	Number of Tappings.	Heart.	Kidneys.	Anesthetic.	Duration of Operation.
Van der Meule										
Schelkly	M		yes							
Lens	M	61								
Morison	F	42	no	no		48				
"	F	39	yes	no		5				
"	M	42	yes	no					chloroform	
"	F	54	no	no		1				
Von Eiselsberg	M	9	no	no			mitral lesion	albumin & casts		
Narath	M	59				2				1 hour
Weir	M	39	yes		2 years	8		casts	ether	
Neumann	F	45	yes					albuminuria		
Ries	F	38			no aseites					
Narath	F	67								
Folmer	M									
Turner	M	45	yes	syphilis		1				
"	M	52	yes			1				
Grinon	F	47								
Babroff	F	38								
Bossowski	F	9								
Packard and Le Cont.	M	63	yes		5 weeks	4	lesion	no albumin	ether	
"	M	52	yes	syphilis	3 weeks	1		no albumin	ether	
Frazier	M	45	yes	syphilis		5	endocarditis	albumin	ether	
Bradford	M	2½	no	no		8		albuminuria	ether	
Burrill	M	40	yes	no		many		albuminuria	ether	
Woolsey	M		yes			none				
"	M		yes			few			ether	
"	M		yes			few				
"	M		yes			few			ether	
"	F		no			2			ether	
"	M		yes			2			ether	
									ether	prolonged
Tilton	M	42	yes	no				no albumin	ether	
Lloyd	F	54	no	no	1 year	2	no	no albumin		
Brown, F. T.	M	41	yes	no		9	no	albumin & casts	ether	
Gerster	M	35	yes	no		numerous		albumin & casts	ether	
								albumin & casts	chloroform	
Roberts, J. B.	M	49	no	no						
" "	M	54	yes	no		8		albumin & casts	ether	
Jelks	M	59				2			cocaine	
Meyer, Willy	M									
" "										
						numerous				
Fisk	F	6	yes	no	10 months	8		negative	ether	
Curtis, B. F.	M	46								
" "	F	50				numerous		negative		
Syms, Parker	M	40	yes	no				albumin		
" " (Roth)	M	40	yes	no		3		no albumin	ether	
Le Boutillier	M	33	yes	no	7 weeks	2	lesion	albumin & casts		
Kelly, J. E.	F	35	yes	no	2 years	several times	no	no albumin		
Mongour										
"										
Markoe, F. H.	F	24	no	no					ether	
" "	M	51	yes	no		numerous			ether	
" "	M	10	yes	no					ether	
" "	M	40	yes	no					ether	
" "	M	24	yes	no					ether	
Brewer	F	56	yes	no					ether	
"	F	48	yes	?	several weeks	1		albumin & casts	chloroform	prolonged
"	M	40	yes	no	3 months			no albumin	chloroform	
"	M	40	no	tuberculous				albuminuria	chloroform	
"	M	30	no	no	2 months	no	lesion	no albumin	chloroform	
Peck, C. H.	M	47	moderate	no	2 months		no	no albumin	ether	
Dwight, E. W.										

Condition of Liver.	Condition of Spleen.	Perihepatitis.	Chronic Peritonitis.	Drainage.	Description of Operation.	Immediate Result.	Remote Result.	Remarks.
				no	suturing omentum to abdominal wall	death		shock
				no	" "	death		14th day
				no	" "	recovery	no improvement	lived 6 months
				yes	Morison operation	recovery	no improvement	" 19 "
	enlarged			yes	" "	recovery	ascites cured	" 2 years
	enlarged			yes	" "	recovery	ascites cured	" 2 "
	enlarged			yes	" "	death		
	enlarged			no	omentum and gall bladder sutured to parietes	recovery	ascites cured	" 2 " (2 operations)
	enlarged			no	omentum sutured to parietes	recovery		
hypertrophic cirrhosis	enlarged	no	no	yes	Morison operation	death		5th day peritonitis
	enlarged			no	omentum sutured to parietes	recovery	ascites cured	lived 6 months
				no	" "	recovery	cured	only symptom hemorrhages
				no	" "	recovery	no improvement	
				no	" "	recovery	no improvement	
	enlarged			no	surface of liver freshened	recovery	cured	lived 4 months
				no	" "	recovery	unimproved	
				no	omentum stitched under parietal peritoneum	recovery	improved	
				no	omentum sutured to parietes	recovery	unimproved	
	enlarged				cholecystotomy	recovery		
	not enlarged			yes	Morison operation	recovery	unimproved	lived 61 days
				yes	" "	death		
	enlarged			no	omentum sutured to parietes	recovery	cured	lived 3 months
hypertrophic		no	no	no	omentum sutured between edges of wound	recovery	unimproved	lived 2½ months
atrophic	enlarged	no		no	" "	recovery	unimproved	lived 1 month
				yes		death		peritonitis
				yes		death		exhaustion
				yes		death		exhaustion
				yes		death		exhaustion
				yes		recovery	improved	less frequent tappings
				yes		recovery	improved	" "
atrophic	enlarged	no	no			death		shock; operated also on hernia
atrophic	enlarged	no	no			recovery	cured	well 2 years later
atrophic	enlarged	no	no					
atrophic	enlarged	no	no	yes	Morison operation	recovery	cured	well 26 months later
atrophic					" "	death		had had severe hemorrhages
atrophic						recovery	unimproved	lived 6 weeks
						death		
						recovery	?	
					omentum sutured to abdominal wall	recovery	cured	lived 4 months
					" "	death		lived 2 weeks
					Morison operation	death		6th day
atrophic	enlarged	no	no	no	omentum sutured between muscle and peritoneum.	recovery	unimproved	
atrophic	enlarged				" "	recovery	improved	not tapped since Nov. 17
atrophic	enlarged				" "	recovery	unimproved	lived 5 weeks
hypertrophic	enlarged			no	" "	death	unimproved	uremia; 7 days
hypertrophic	enlarged	no		no		death		exhaustion from hemorrhage
atrophic	enlarged	yes	no	yes	omentum sutured to parietes	recovery	cured	no ascites; 2 years later
atrophic, nodular	enlarged		no	yes		recovery		
						death		subsequent history unknown
atrophic	enlarged		thickened peritoneum		laparotomy only	recovery	improved	tapped every 14 days
atrophic	enlarged			no	omentum sutured to parietes	recovery	unimproved	tapped at intervals
atrophic	enlarged					recovery	unimproved	no autopsy
atrophic	enlarged				laparotomy only	death		death 5 months; no ascites
atrophic	enlarged				" "	recovery	improved	
atrophic	enlarged	no	no	yes	Morison operation	death		uremia
atrophic	enlarged	no	no	yes	" "	death		shock
atrophic	enlarged	no	no	yes	" "	death		peritonitis
atrophic	enlarged	no	no	no	omentum sutured to parietes	recovery	improved	tapped twice in 3 months
atrophic, nodular	enlarged	no	no	yes		death		peritonitis following later drainage
atrophic, nodular	enlarged	no	no	no	Morison operation	recovery	improved	5 subsequent tappings, last 2 months after operation; 5 months after operation no ascites

stitched to the anterior abdominal wall, which was tightly closed. The operation required only about ten minutes, and the patient recovered quickly from the anesthetic; there was no vomiting and no shock. The following day he expressed himself as greatly relieved. The wound healed kindly; there was no rise of temperature or other untoward symptoms. The fluid quickly reaccumulaed and he was tapped at the end of three weeks, again six weeks later. The appetite improved; he gained strength, and, although the cough was still troublesome, his abdominal condition was greatly improved. He was discharged in March.

Case V.—L. P., aged thirty years, native of Porto Rico, was admitted to the Private Patients' Pavilion of Roosevelt Hospital November 9th. No history of alcohol or syphilis could be obtained. His illness began about one year ago with an attack of dysentery. This was subacute from the first and gradully passed into a state of chronic colitis which has since continued. During the two months prior to his admission he had noticed a gradual enlargement of the abdomen and progressive emaciation. Weight 90 pounds.

Examination: Heart and lungs negative; abdomen greatly distended with fluid; no liver dulness could be made out and the spleen was not palpable. Examination of the rectum by sigmoidoscope revealed the presence of three large superficial ulcers in the lower six inches of the rectum. Temperature normal, pulse between 90 and 100. This case was also regarded as one of tuberculous peritonitis.

Under chloroform anesthesia an incision was made in the median line and the abdomen freely opened. There were no evidences of a tuberculous process in the peritoneum, which seemed to be quite normal in appearance; the sigmoid and rectum were greatly thickened and a number of glands were palpable in the mesentery. The liver was small, hard and nodular, and adherent to the under surface of the diaphragm. The spleen was enormously enlarged and its outer surface attached to the parietal peritoneum by dense adhesions. The omentum was stitched to the anterior abdominal wall and the incision tightly closed. Duration of operation, less than fifteen minutes. No shock followed. The temperature remained below 100° F. for one week, but the fluid reaccumulated so rapidly that the lower angle of the incision was opened and a tube introduced. This was followed by peritonitis and death.

It will thus be seen that all of these cases were true examples of ascites due to cirrhosis of the liver. Careful inspection and palpation at the time of operation in each showed a small liver, large spleen, and no evidence whatever of perihepatitis, chronic or tuberculous peritonitis. All were greatly distended with fluid and apparently in the last stages of toxemia from the disease. All but one had marked evidences of nephritis. One died of uremia, due to my mistake in using ether for anesthesia in a patient with marked evidence of nephritis; one from shock, due probably to faulty technic resulting in too long an exposure on the operating table; the third died from septic peritonitis, due in all probability to faulty technic in managing the drainage subsequent to operation.

The fourth case, although the most unfavorable of all, recovered from the operation without an untoward symptom, for the following reasons: Only a very small amount of chloroform was used, the operation was completed in about ten minutes, and no permanent drainage was employed, removal of the fluid being accomplished by subsequent tappings.

The fifth case did well for one week, showing no fever or signs of peritonitis. Symptoms of bronchopneumonia and later other evidences of general sepsis including a peritonitis, followed the subsequent introduction of a drainage-tube.

I desire to say in conclusion that, in reviewing the statistics furnished by this table, it will be seen that at least six cases have been cured of ascites by this procedure and have remained well for a period of two years or more; six others have been relieved of this symptom for from two to six months, but have died, either without a return of the ascites, or have not been under observation long enough to demonstrate that the cure is permanent. Another case, that of a patient suffering from hemorrhages from the alimentary canal, was promptly cured by this operation, and a number of others have been materially improved. Thirty-eight have recovered from the operation, and, when we consider that in the great majority of instances these patients were in the last stages of an incurable disease, and if we are to accept the statements of White and Thompson, within a few weeks of an inevitable death, this fact should, I think, encourage our medical friends to suggest the operation at an earlier and more favorable stage of the disease. If this is done, I firmly believe that later statistics will show a substantial improvement over those I am able at this time to present.

ON THE ETIOLOGY OF CIRRHOSIS OF THE LIVER.[1]

BY JAMES K. CROOK, M.D.,
OF NEW YORK.

As Dr. J. C. Wilson well said in his remarks before this Academy several weeks since, no definition can be framed which will include, both pathologically and clinically, all forms of so-called cirrhosis of the liver. A careful examination of the literature of hepatic disorders will show that only three distinct primary varieties of the disease have gained anything like a fixed or unequivocal position in medical terminology. These are (1) venous or atrophic cirrhosis, the original cirrhosis of Laennec; (2) hypertrophic cirrhosis, *maladie de Hanot*, and (3) biliary cirrhosis. A proliferation of the connective-tissue

[1] Read before the Section on General Medicine of the New York Academy of Medicine, Dec. 17, 1901.

stroma of the organ constitutes the one underlying anatomicopathological process common to all varieties. This new tissue may never reach the stage of cicatricial contraction, but remain always in a condition of proliferation, the liver thus continuing in a state of hypertrophy until the termination of the case. For the purposes of this paper only these three important forms of cirrhosis, upon the occurrence of which pathologists are generally agreed, will be considered.

Venous or Atrophic Cirrhosis.—This is by far the most common form of chronic interstitial hepatitis. Many writers describe no other. It is the form of the disease always implied when no further distinguishing designation is used. The causes of venous cirrhosis may be classified as predisposing and determining, of which the latter are by far the most important, the predisposing influences being merely those which facilitate the operation of the actual exciting causes. According to Giovanni of Padua predisposition may be said to consist in an excessive morbidity of the lymph-corpuscles which enter into the structure of the gland. Age and sex may be ranked as occupying positions of prime importance among the predisposing factors. In an analysis by the writer of 4,737 deaths from cirrhosis of the liver reported to the New York Health Board during the eleven years from 1889 to 1899, inclusive, the ages of the decedents were as follows: Under one year of age, 9; total under five years of age, 11; five to ten, 11; ten to fifteen, 9; fifteen to twenty-five, 553; twenty-five to thirty-five, 1,061; thirty-five to forty-five, 1,196; forty-five to fifty-five, 959; fifty-five to sixty-five, 560; sixty-five to seventy-five, 146; seventy-five to eighty-five, 14. It will be observed that the period from thirty-five to forty-five shows the largest number of victims of cirrhosis, while that between twenty-five and thirty-five is a good second, and from forty-five to fifty-five not far in the rear. This accords very closely with facts already well known to clinical observers. Notwithstanding Virchow's report of an autopsy in a congenital case, some writers have doubted the existence of the disease in infancy, but the presence in this list of 9 cases under one year of age, with a total of 11 under five, shows beyond dispute that cirrhosis of the liver may occur at an early period of life. With one exception all of the deaths in infants prior to one year of age were of males. However, a very interesting case of a girl baby, aged sixteen months, who apparently recovered, was reported by Dr. R. Abrahams of this city about two years ago. The case, with photographs, was presented to the New York County Medical Association (*Medical Record*, Jan. 6, 1900). Of the patients in the foregoing list 2,980, or 62.28 per cent., were males, and 1,757, or 37.77 per cent., were females. Of 37 cases treated at the Roosevelt Hospital in 1899 and 1900, notes of which were furnished to the writer by Dr. W. P. Millspaugh, house physician, 27 were males while only 10 were females. These figures go to show that middle-aged males from thirty-five to fifty-five furnish by far the greater proportion of victims of cirrhosis.

A question of interest relates to the nationality of persons dying of hepatic disorders. In the Health-Board publications cases of cirrhosis and hepatitis are grouped together in the tables referring to nativity. The writer has analyzed the returns for the nine years from 1889 to 1897, inclusive, the reports for 1898 and 1899 not covering this subject. During these nine years the nativities of cases from the five principal nationalities contributing to the list of deaths from cirrhosis and hepatitis were as follows: United States, 1,112; Ireland, 1,063; Germany, 774; England, 121; Italy, 98—a total of 4,168. As shown by the figures 1,112, or slightly more than 26 per cent., were native-born, while 3,056, or a little more than 73 per cent., were of foreign birth. The addition of natives of all other foreign countries contributing to these deaths would considerably increase the disparity between native-born and foreign subjects. These figures go to show that the foreign-born population of this city are vastly more liable to liver complaints than those who are native. Of the alien population the Irish would appear to furnish a somewhat greater proportion of victims to hepatic maladies than the natives of any other country, with Germany not far behind. No statistics relating to occupation are furnished by Health-Board publications. Of the Roosevelt Hospital cases just cited there were but one bartender and one saloonkeeper. Seven of the cases were ordinary laborers, while the remainder were scattered among various occupations. The observations of many eminent writers substantially agree, however, that persons pursuing sedentary occupation are much more liable to cirrhosis, as well as to other forms of hepatic disease, than those whose vocations keep them actively employed in the open air.

Among the exciting or determining causes of cirrhosis of the liver the *habitual imbibition of alcoholic stimulants*, especially strong spirits, such as whiskey, gin, and brandy, takes first rank. Of the 37 cases at Roosevelt Hospital, 29 presented alcoholic histories. Of 17 patients under the writer's own observation, all save two had been more or less addicted to the use of ardent spirits, usually in various forms. It must not be inferred, however, that the milder malt beverages consumed too largely of late years are innocuous in this direction. The statistics of the New York Health Board already referred to indicate that our beer-drinking German fellow-citizens supply almost as large a proportion of fatal cases of this disease as do those from Ireland who are popularly credited with being partial to more potent fluids. A German brewer, under the writer's care, who died a few months since of a typical hepatic cirrhosis after more than a dozen tappings, had consumed large quantities of beer daily, to the entire exclusion of strong spirits, for many years prior to his illness. Alcohol appears to have an elective affinity for the liver. Giof-

fredi (quoted by Semmola, Twentieth Century Practice) observed that if a cat were poisoned by alcohol administered subcutaneously, a third of the injected fluid would be found in the liver, a fifth only in the brain, a less amount in the kidneys and lungs, and a mere trace in the muscles and blood. If chronic poisoning be produced in an animal, alcohol will be found in the liver many days after its suspension and after its total disappearance from the other organs and from the blood. Lancereaux maintains that the *vin ordinaire* of France is a common cause in that country. Of 210 cases he found that in 68 cases this disease could be traced to no other cause except excess in this wine. Some writers believe that the influence of alcohol is wrought upon the liver by first producing a gastro-intestinal catarrh and that the resulting fermentative products of meat-digestion being absorbed and conveyed to the liver, gradually set up the morbid changes which eventuate in this disease. However this may be, clinical observers everywhere are agreed that the habitual use or abuse of alcohol is responsible for the vast majority of cases of chronic interstitial hepatitis in all civilized countries. Murchison claims never to have seen a case due to any other cause. In this connection it may be stated that a most dangerous practice consists in the ingestion of alcoholic beverages when the stomach is comparatively empty, for example, before meals and during the hour before retiring. Active exercise while drinking tends to diminish to some extent the liability to cirrhosis, as well as to other diseases, by promoting the speedy combustion or elimination of the poison, thus reducing the toxicity of the fluids and plasma. The ingestion of food also greatly modifies the injurious action of this substance upon the liver.

Syphilis has long been credited with an important influence in the causation of hepatic cirrhosis, Virchow having been one of the first to illuminate the subject of visceral syphilis and to demonstrate the occurrence of sclerosis of the liver from syphilitic infection (*Virchow's Archiv*, Vol. XV., p. 281. *Vide* also Lancereaux, "A Treatise on Syphilis," Syd. Soc. Edition). Of the cases above cited at Roosevelt Hospital, 3 gave syphilitic histories. The difficulty of obtaining information relating to the past occurrence of this disease is, however, well known. It is no doubt in not a few instances associated with alcoholic excess in the production of the trouble.

Malaria is credited by most writers with a causative influence in cirrhosis of the liver. Italian physicians especially, who see much malaria, believe it to possess an important etiological relation to cirrhosis. Osler (Practice of Medicine, 1901), however, states that in an extensive experience with malaria in the wards of the Johns Hopkins Hospital during the last nine years not a single case of cirrhosis due to this cause was seen. It is at any rate highly probable that the repeated attacks of hepatic congestion which mark the course of malaria at least strongly predispose the interstitial structure of the organ to inflammation.

Certain other *infectious diseases,* notably *typhoid fever,* have of late come to be regarded as causes of cirrhosis. The researches of Frerichs, Liebermeister, Cornil and Ranvier, Hanot and others, show that the liver is profoundly involved in the morbid changes of typhoid. The pathogenic mechanism would appear to be a double one relating both to the direct action of the bacillus and to the effects of the toxin. It is undoubtedly true that cases of cirrhosis in which all other causative influences are absent are met with dating from an attack of typhoid fever. Scarlatina, measles, cholera, smallpox and yellow fever have also been mentioned as standing in an etiological relation.

Overeating and, especially, *excessive indulgence in highly-spiced foods* may lay the foundation for hepatic cirrhosis. It is stated that the disease is very common in certain districts of India where the use of much spice is prevalent. It cannot be doubted that the liver readily reacts to the absorption of certain irritating food-products from the gastro-intestinal canal. Some of these might very reasonably be supposed to be capable of giving rise to connective-tissue inflammation. The cause of this process in the liver is probably only an exaggeration of its normal function, excited either by an abnormal stimulus or by an excessively increased physiological action (Semmola).

Certain mineral poisons, such as antimony, arsenic, and notably lead and phosphorus, have the power to set up irritative hyperplasia of the connective tissue of the liver. These metals accumulate in the organ in preparation for elimination. Lead, according to Potain, produces a marked sclerotic action on the liver, and Lafitte was able to excite true cirrhosis in rabbits by the continued administration of salts of lead. Lancereaux observed the disease among copper-smelters who were absolutely temperate.

It has been recently claimed by Von Kahlden (*Münch. med. Woch.*, Oct. 5, 1897) that cases of *acute yellow atrophy* of the liver which are not rapidly fatal develop into typical examples of cirrhosis. Marchand found that the liver of a woman who had six months previously suffered from an attack of acute yellow atrophy showed both macroscopically and microscopically a picture very closely resembling cirrhosis. Stroebe reports a similar case, while the case reported by Von Kahlden presents a third example of cirrhosis developing from acute yellow atrophy. If the views of Von Kahlden are borne out by further investigation, the causes of acute atrophy may also be regarded as indirectly productive of cirrhosis.

Among other causes of hepatic cirrhosis mentioned by various writers may be mentioned tuberculosis, cardiac disease, malignant growths, diabetes, ptomain-poisoning, chronic poisoning from sulphuric ether, inherited tendency, fright,

and traumatism. It will be observed that most of these latter causes produce secondary cirrhosis; the others are probably of little importance.

Hypertrophic Cirrhosis, Maladie de Hanot.—This form of cirrhosis, first accurately described by Hanot in 1875, is prominently mentioned by French writers, but appears to have attracted little attention elsewhere. In this affection the liver is uniformly enlarged and smooth, moderately granular on the surface and indurated. No data are offered to show how it can be distinguished during life from the hypertrophic liver of ordinary venous cirrhosis. It differs from that variety of the disease, however, in the tendency of the liver to remain enlarged. Sclerosis and contraction of the organ do not occur even in long-standing cases. The etiological factors appear to be quite similar to those of Laennec's cirrhosis. A greater proportion of cases, however, occur in early adult life.

Biliary Cirrhosis.—This form of cirrhosis consists fundamentally in a primary affection of the biliary reticulum, more especially in an angiocholitis or a peri-angiocholitis of the bile-ducts of small and medium caliber. The first result is a stasis of the biliary circulation followed by congestion and leading ultimately to permanent enlargement of the organ without tendency to sclerosis. It seems highly probable that the immediate cause of the trouble is an upward extension of some pathogenic influence through the biliary system. This theory has been advocated by Charcot, Goubault, and Chauffard, but it has not been definitely proved. The causal relations of this form of cirrhosis are still largely problematical. It is most frequently seen in young males of twenty to twenty-five and is in many cases alcoholic, but this influence is often absent.

ON THE TREATMENT OF THE ALCOHOLIC CIRRHOSES OF THE LIVER.[1]

BY GEORGE M. CONVERSE, M.D.,
OF NEW YORK.

Treatment, when it is not empirical, must come from as perfect a knowledge as we can obtain of the condition to be treated.

Until a few years ago the atrophic cirrhosis of Laennec and the hypertrophic alcoholic cirrhosis were attributed to the direct action on the liver of alcohol in its different forms. While there is no question that alcohol may so act directly as shown by the unimpeachable experiments of Mertens, who produced cirrhosis in animals by the inhalation of alcohol, later researches show that alcohol acts locally on the gastro-intestinal tract, causing a catarrhal inflammation, denuding the mucous membrane of its protective epithelium and thus facilitating the entrance of toxic substances into the portal system. These toxic substances are numerous; they result from incomplete and faulty elaboration of food, as toxic albuminoids or toxipeptones, or from fermentations and putrefaction of the intestinal contents producing various toxins and ptomains.

Meanwhile the study of the functions of the liver has made great advances; in addition to the biliary and glycogenic functions, the formation of urea, of uric acid, the elaboration of fats, the researches of Bouchard have shown that the hepatic cell fixes many mineral poisons and arrests and modifies most alkaloids, ptomains and bacterial toxins.

Again, in the case of the alcoholic cirrhoses it was formerly taken for granted that, cirrhosis having occurred, there was nothing to be done but to remove the ascitic fluid when necessary and otherwise to make the patient as comfortable as possible. Now we know, from a better, though still imperfect knowledge of the disease, that in its earlier stages, at least, much may be done toward a relative cure. The adult cicatricial connective tissue cannot indeed be removed, but, as Hanot expressed it, "While it is the presence of this connective tissue that confirms the diagnosis, it is the condition of the hepatic cell that indicates the prognosis." From these views as to the etiology of the alcoholic cirrhoses it is evident that the earlier the treatment is instituted the greater will be the chances of success; therefore the question of early diagnosis is of paramount importance. It is often said that cirrhotics come to the physician when it is too late to do much for them; this may be true of hospital patients. But these same patients have been seen before; they have been seen on the occasion of some trivial gastro-intestinal disturbance or acute alcoholism, etc.

Of 995 men whom I have examined in Dr. Dow's rooms at the Vanderbilt Clinic, 32 had large livers with clear alcoholic history. This number does *not* include those livers enlarged from active or passive congestion nor from tuberculosis or malaria.

There was one solitary case of classic atrophic cirrhosis of Laennec. Of the 32 cases, two only were advanced cases of hypertrophic alcoholic cirrhosis; 16 presented symptoms that would lead to the investigation of the liver, mostly gastro-intestinal symptoms of alcoholism, and 14 came for various pains and aches having no relation to that organ. If these cases with clear alcoholic histories, and after the elimination mentioned, were not cases of alcoholic hypertrophic cirrhosis in the *early* stage, what could they have been?

The indications for the treatment are as clear and logical as they can be. Since alcohol is the chief agent in the production of those conditions of the digestive tract necessary to the development of cirrhosis, it must be entirely suppressed. Since the gastro-intestinal epithelium is more or less injured, a diet must be given which will cause least irritation and be as little toxic as possible. This diet is milk and all authors agree that, to be effective, it must be exclusive.

Milk is a complete food which is easily digested and easily absorbed, and, as was shown some years ago by Gilbert and Domenici, is of

[1] Read before the Academy of Medicine, Dec. 17, 1901.

powerful assistance in diminishing intestinal sepsis, for, after five days of absolute milk diet these authors found that the number of microbes contained in the feces was 70 times smaller than before its use. This is at first surprising, since milk is an excellent culture-medium, especially for the colon bacillus. The reasons they ascribe for the fact are multiple: (1) The facile digestibility of milk; (2) the almost complete absorption; (3) the feeble nutritive power of the residue; (4) the chemical reactions occurring during its stay in the stomach. The quantity to be taken should be from three to four liters daily; more than this may cause stasis and fermentation; less would result in emaciation and loss of strength. The patient may take a half liter every three and a half hours or 250 grams every two hours; he should begin by taking one liter a day and increase a half liter each day, for it is rare that the patient can take the three liters at the start. Some patients enjoy the benefit of this milk diet for a short time only, and then develop such a dislike for it that they cannot bear the sight of it. This disgust is often induced by the fermentation of some of the milk that remains in the mouth and may be prevented by washing the mouth with Vichy after each one of the meals.

The diet should be continued until the gastro-intestinal symptoms and the congestion of the liver that are frequently present at the beginning of treatment have subsided. In early and simple cases a week or two may be sufficient; in more advanced cases it should be continued for from two to four months. In any case, it is gradually relaxed in favor of eggs, vegetables, etc., meat being returned to last of all. At the beginning of treatment, to clear the intestine of its toxic contents and at the same time to aid in reducing the congestion of the liver, a purgative is given and later mild laxatives at intervals. It is unnecessary to add that the patient should take advantage of rest, open air, moderate hydrotherapy, and lead as careful a life as his financial situation and occupation will permit.

In the moderate cases of cirrhosis before ascites these hygienic measures may be sufficient. Then we must take into account the process of the regeneration of the hepatic cells. This subject was first broached by Tizzoni in 1883, by Canalis in 1886 on the subject of the healing of wounds of the liver. In 1891 Ponfick and Von Meister of Berlin demonstrated the regeneration after the removal of one-quarter and even one-half of the liver in rabbits. It has been demonstrated in man, notably in a case of alcoholic hypertrophic cirrhosis of Dujardin-Beaumetz of Paris, in which the patient, after having been relatively cured of his cirrhosis for over two years, died in forty-eight hours of an acute lobar pneumonia; and, again, by Hanot in a case of biliary hypertrophic cirrhosis in which there were found many normal cells, others hypertrophied, others in full karyokinesis. It is also supported by clinical evidence, for Surmont finds a diminution of toxicity of the urine in five cases of hypertrophic cirrhosis examined, while the toxicity is increased in cases of atrophic cirrhosis in which the glandular element is almost totally destroyed.

When ascites develops, it is all important to differentiate between the atrophic and the hypertrophic forms of alcoholic cirrhosis. In the atrophic variety there is menace at once from the circulatory obstruction and from the glandular destruction. Hale White points out that the average duration of life after the appearance of ascites is eight weeks. Nevertheless, the treatment should be pursued on the same lines as previously stated, being supplemented by paracentesis and the judicious use of purgatives and diuretics, for the average does not speak for the individual case. In a recent thesis Willemin mentions sixteen cases of atrophic cirrhosis that were improved for periods varying from several months to several years.

Simply to mention the fact: Spillman has tried hepatic opotherapy in five cases of atrophic cirrhosis with encouraging results, for the treatment caused an increase in the amount of urine with parallel increase in urea, phosphoric acid, and an absence of albumin and urobilin. The same treatment had no influence on two cases of Hanot's biliary hypertrophic cirrhosis.

The general treatment is again the same in hypertrophic cirrhosis after the development of ascites. Its success, as H. Campbell Thomson indicates in a paper that has been referred to here, will depend largely on the nature of the ascites. If the accumulation of fluid is due to the mechanical obstruction in the portal system, it indicates an advanced stage of cirrhosis and frequent tappings will probably only precipitate the end. Such a fluid is pale, non-fibrinous, contains but little albumin and but few cells, and leaves a solid residue of about 2 per cent.

If the ascites be due mostly to the coexistence of a perihepatitis and chronic peritonitis, complete rest, together with the milk diet and removal of the fluid, may do much for the patient. This ascitic fluid is fibrinous, albuminous, rich in blood-cells and contains a residue of about 4 per cent.

Our knowledge of the intimate causation of ascites is very meager and such divisions are apt to be too schematic, for the same irritating sclerogenous cause is at work both on the portal system and on the finer vessels of the peritoneum. However this be, over two-thirds of the reported cases of relative cure of cirrhosis with ascites are of the hypertrophic variety. Many of them read like the following case mentioned by Chauffard in an article on the "Clinical Forms of Cirrhosis," read at the Congress of Moscow.

"The patient, a chronic alcoholic of many years' standing, entered the hospital in January with a well-marked hypertrophic cirrhosis and considerable ascites. From January to May he was tapped five times, 54 liters of fluid being removed. His general condition was bad with marked emaciation. At the end of May the ascites ceased and did not reappear. The patient

soon returned to ordinary diet, gained 13 kilos in weight and became quite as strong and able as before his illness. For over a year after this and up to the time of writing the patient had remained quite well, although some alimentary glycosuria showed that the liver had not recovered its functional integrity."

I have omitted symptomatic treatment and also the surgical side of the subject in the above considerations on the alcoholic cirrhoses. The first is, as Musser says, common property; the second is in itself a large subject.

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ON THE DIAGNOSIS OF CIRRHOSIS OF THE LIVER.[1]

BY J. C. WILSON, M.D.,
OF PHILADELPHIA.

The diagnosis of well-defined cirrhosis of the liver, the terminal condition, is usually a simple matter. Whether it be the atrophic form of Laennec or the hypertrophic form of Hanot, the symptom-complex in most of the cases is characteristic. In the former the pinched face with its distended venules and muddy or subicteroid hue—*facies hepatica,* the spare chest and thin arms, the distended belly with its conspicuous superficial veins and the diminished area of liver dulness, leave no doubt of the nature of the malady. In the latter the jaundice, the fairly well-preserved nutrition, the big liver without ascites, and occasional irregular fever, render the diagnosis equally clear. The two conditions are clinically distinct because they are the manifestations of essentially different pathological lesions. The one thing that these lesions have in common is an overgrowth of the interstitial connective tissue of the liver. It might be said that they have nothing in common clinically save that they are diseases of the liver. Yet they are described respectively as the atrophic form and the hypertrophic form of the same affection, hepatic cirrhosis. It is of interest to investigate the etymological significance of this unfortunate word "cirrhosis," originally selected by Laennec to describe an anatomical peculiarity of the contracted liver far from constant, and subsequently applied to changes in other viscera attended by an overgrowth of connective tissue, so that there have been those who have spoken of cirrhosis of the kidney, cirrhosis of the lungs and the like. The word is derived from the Greek κιρρος, tawny or orange-yellow, the color of the liver substance in some of the cases. It has nothing whatever to do, save by a remote and misleading association, with the sclerotic changes due to hyperplasia of connective tissue stroma.

Vaughn in a recent study of the subject[1] concludes that so-called atrophic and hypertrophic cirrhosis are not different forms of the same disease but wholly different diseases. He states that the former is known as atrophic cirrhosis because from its earliest possible recognition the liver is less than normal in size; while the hypertrophic is known as such because at every stage of the disease the liver is larger than normal; that the atrophic is known as venous cirrhosis because of the early and constant involvement of the intrahepatic branches of the portal vein, the hypertrophic as biliary cirrhosis because of the early appearance and constancy of icterus; that in atrophic cirrhosis the primary destructive changes are in the hepatic cells, while in hypertrophic cirrhosis the epithelium of the gall-ducts is the site of the primary involvement; that the former might be known as toxic, the latter as infective cirrhosis. These are practically the views of most of the later systematic writers upon the subject, and in particular Quincke, in Nothnagel, and Semmola and Gioffredi in the Twentieth Century Practice.

This clear-cut classification, while in some respects convenient and while it provides categories for well-marked cases of widely different morbid conditions, by no means meets the requirements of all the cases and does not appear to be wholly justified upon etiological, anatomical or clinical grounds. There are cases of atrophic cirrhosis in the causation of which alcohol plays no part, and cases of hypertrophic cirrhosis in hard drinkers. My clinical experience leads me to believe that alcohol is a very common cause of this form of cirrhosis.

Cases of cirrhosis of the liver without jaundice and with the evidences of a high degree of portal obstruction in which the liver is normal in size or slightly enlarged are by no means rare. In addition to these there is the fatty cirrhosis common in beer-drinkers. There is a large group of cases in which the symptoms are neither those of the atrophic nor the hypertrophic form. These are designated mixed forms and are thought to be due to the coexistence of the two forms, the toxic and the infective, in the same individual. On the other hand, Hawkins of St. Thomas's Hospital, in the article on cirrhosis of the liver in Allbutt's System, expresses the opinion that the terms "atrophic" and "hypertrophic" are scarcely worth retaining. "The former," he observes, "has lost much of its fitness now that statistics show that the hob-nailed liver, to which it was originally applied, is not necessarily small, but is often in-

[1] Read before the Section on Medicine of the New York Academy of Medicine, Nov. 21, 1901.

[1] Journal Amer. Med. Assoc., Oct. 5, 1901.

creased both in size and weight," while "the phrase hypertrophic cirrhosis has become so complicated by the postulate of a biliary cirrhosis that its significance is vague and uncertain." Hawkins does not recognize a vascular or toxic form corresponding to the atrophic form of writers (Laennec's cirrhosis) and a biliary or infectious form (Hanot's cirrhosis), but states that "two forms of cirrhosis of the liver are induced by the excessive use of alcohol." These two forms are separated both in their morbid anatomy and in their clinical features. In the first, which is by far the more common, the newly-developed fibrous tissue is "multilobular," that is, it tends to surround large groups of hepatic lobules. This form is commonly associated with ascites but seldom with jaundice. In the second and less common form of *alcoholic cirrhosis* the new tissue is mostly developed around single lobules and the condition is properly described as "unilobular." There is little tendency to ascites, while jaundice is common.

In this connection may be mentioned Flexner's researches in regard to the new tissue in cirrhosis of the liver.[1] He found both the white fibrous tissue and the elastic tissue increased and the chief distinction between the histology of the atrophic and hypertrophic cirrhoses to depend upon the degree of extralobular growth and the freedom with which the lobules are invaded, and that "in hypertrophic cirrhosis there would appear to be less interlobular growth and an earlier and firmer intralobular growth."

The chief objection to the classification of the cirrhoses into atrophic, vascular, toxic, on the one hand, and hypertrophic, biliary, infective, on the other, is that it does not conform to the facts. An objection of minor importance is to be found in the failure to provide for the cardiac and syphilitic cirrhoses, cirrhosis due to pneumonoconiosis, that form arising from chronic obstruction of the bile-ducts, chronic perihepatitis—capsular cirrhosis—and other forms of minor importance.

The difficulties in the diagnosis of hepatic cirrhosis are not as in most other diseases accidental. They do not arise from the peculiarities of individual cases. They are essential and due to the fact that no definition can be framed that at once pathologically and clinically includes all the cases. This arises from Laennec's choice of a term descriptive of an inconstant phenomenon and without pathological significance. "Cirrhosis" is conspicuous among the nosological terms that hamper medicine and obstruct the progress of knowledge. If it could be erased from the list of diseases our conception of the various conditions to which it is applied would be greatly simplified. The one underlying lesion common to all of them is an overgrowth of the fibrous tissue of the liver. The term chronic interstitial hepatitis is at once descriptive of the anatomico-pathological condition and sufficiently comprehensive to include all the cases. Its more general use is to be desired.

[1] Trans. Assoc. of Amer. Physicians, Vol. XV., 1900.

The etiological relations of individual cases may be indicated by qualifying adjectives: (*a*) In general toxic, and in particular alcoholic, plumbic, gouty, diabetic, rachitic and the like. We must include here forms of interstitial hepatitis due to chronic phosphorus-poisoning and the abuse of condiments. The assumption that intestinal auto-intoxication gives rise to interstitial hepatitis requires confirmation. (*b*) In general infectious; in particular the specific febrile infections are occasionally followed by chronic interstitial hepatitis. Malaria produces similar changes and syphilis gives rise to three well-characterized forms, namely, diffuse syphilitic hepatitis, commonly congenital, gummata which undergo fibroid transformation, and an extensive perihepatitis with increase in connective tissue of the portal canals. (*c*) Mechanical irritation. The long-continued exposure to an atmosphere laden with dust-particles such as produce pneumonoconiosis, whether these be mineral or metallic, may also give rise to an inflammatory process in the connective tissue of the liver. (*d*) Congestive; the chronic hyperemia of the blood-vessels occurring in heart disease gives rise to an interstitial hepatitis—the cardiac liver. (*e*) Obstructive, the result of chronic obstruction in the bile-ducts.

Clinically not all forms of interstitial hepatitis can be recognized. The symptoms are often vague and referable to other organs, especially those of the gastro-intestinal tract. In many of the cases the condition during life can only be suspected, the morbid phenomena being those of the primary disorder. Direct physical signs are available for diagnosis only when there are definite changes in the size or contour of the liver. Hence, the cases of chronic interstitial hepatitis, whatever its course, must be arranged in three groups according as the liver is found upon physical exploration to be (*a*) of about the normal size, (*b*) atrophic, and (*c*) hypertrophic.

With the histological changes the diagnostician to whom the problem presents itself *intra vitam* has nothing to do.

a. Since there are no characteristic symptoms in many cases of chronic interstitial hepatitis, and since in many of the cases the liver remains of normal size throughout and is in all of normal size until the disease has made some progress, it follows that the diagnosis is impossible in a considerable proportion of the cases and in the earlier stages of all cases. The most that can be done is to assume that certain etiological factors, as alcoholism, malaria, valvular disease of the heart with failing compensation being operative, and more or less well-pronounced gastrohepatic symptoms present, the patient may have an interstitial hepatitis. The diagnosis under such circumstances must be purely an anatomical one, and this is frequently the case in the fatty form of interstitial hepatitis in which symptoms directly referable to the liver are often absent and not rarely in the multilobular form either with or without atrophy. In the lat-

ter instance the true nature of the malady may reveal itself in sudden copious hematemesis or in the peculiar toxemia caused by the entrance of portal blood which has not traversed the liver into the general circulation, to which Stockton has especially directed attention.[1]

When, however, there are decided changes in the size of the liver the state of affairs is wholly different. The interstitial hepatitis reveals itself not only in physical signs, but also in symptoms of significance.

b. The liver is diminished in size. A high degree of atrophy may occur provided the collateral circulation has been established without the development of ascites or other symptoms which attract the attention of the patient to the liver. As a general rule, however, the malnutrition, the enlargement of the spleen, the distended superficial abdominal veins and the increased girth caused by the ascites are diagnostic. It is of cardinal importance also to remember that all these phenomena can occur in an interstitial hepatitis in which the liver is not only atrophic but even somewhat enlarged. Under these circumstances jaundice is not usually present.

Adhesive pylephlebitis closely resembles the atrophic form of interstitial hepatitis. The etiological considerations and the rapidity with which the peritoneal effusion develops and reforms after tapping, as was shown in a case recently in my service in the Pennsylvania Hospital, are important in the differential diagnosis. It is said that thrombosis of the portal vein is followed by an atrophy of the liver, which renders the diagnosis difficult. In the cases that have come under my observation death has occurred in the course of a few weeks and the liver was of normal size.

c. The liver is increased in size. The hypertrophic form of chronic interstitial hepatitis—Hanot's disease—like the forms already considered, may present insuperable difficulties in diagnosis in its early stages. The liver may be as yet of normal size. The early icterus may resemble that of catarrhal jaundice—a resemblance heightened by its fluctuation or temporary disappearance and by the occurrence of fever. The recurrence or persistence of the jaundice, its intensity and the presence of bile in the stools are of diagnostic importance. When the disease is established the uniform enlargement of the liver, the splenic tumor, the deep and persistent jaundice and the occasional attacks of fever are diagnostic. The fever is of subcontinuous or remittent type and extends over periods of days or weeks. Chills and sweating are not common, as in the fever of impacted gall-stone—Charcot's or true hepatic fever.

The diagnosis of hepatic capsulitis—the capsular cirrhosis of authors—is usually attended by insuperable difficulties. The symptoms are those of the atrophic form of chronic interstitial nephritis. Jaundice is not usually present. The kidneys are granular. This condition may be associated with perisplenitis and proliferative peritonitis.

In conclusion it may be affirmed that:

1. The term cirrhosis is an unfortunate one. It has been applied to conditions wholly unlike etiologically, anatomically and clinically, which have, however, in common an overgrowth of the connective tissue of the liver.

2. The term chronic interstitial hepatitis is to be preferred.

3. Alcohol is by far the most common cause of interstitial hepatitis alike in the cases in which the liver is of normal size or slightly enlarged, in the atrophic form and in the hypertrophic form.

4. The symptoms of this condition are in many cases ill-defined and not rarely the liver is not changed in size or contour. The clinical diagnosis in a large proportion of the cases is therefore impossible.

5. In the presence of definite symptoms and of the signs of enlargement or diminution of the liver, that is to say, in terminal conditions, the diagnosis is commonly a simple matter.

[1] Jour. Amer. Med. Assoc., Sept. 28, 1901.

CIRRHOSIS OF THE LIVER AS SEEN IN CHILDREN.

BY W. C. HOLLOPETER, A.M., M.D.,
OF PHILADELPHIA.

In presenting this very brief paper on cirrhosis as found in young life, I will preface my remarks with the statement that I shall limit myself entirely to answering the question in the affirmative, with some attention to its etiology and diagnosis. The subject is usually dismissed with a comparatively vague article in the text-books by American authors, or a compilation seems to be the order of their researches. English writers seem to have had more experience, evidently by reason of a long line of heredity and unfavorable environments, and they probably give about as clear an outline of the subject as is to be found in literature.

Cirrhosis has its analogy arteriosclerosis in early life and with this latter affection might be regarded as a rare condition. Liver diseases are, however, usually the results of secondary troubles and, as such, they require the element of time to produce them. Unfortunately adult age is reached oftentimes before the secondary results are discovered. Sclerotic blood-vessels are no longer an unusual feature in adolescence, and portal fibrosis is not so unusual as has been clinically demonstrated, especially when we consider heredity, environment and the neglect of personal hygiene among parents as well as among the children. The embarrassing point in all liver trouble in young life is that we so frequently forget the relative over-size of the organ, and to this fact is due the frequent error of regarding the organ as pathological when it is, in reality, normal, or, at best, functionally distended above its usual volume. Thus, septic jaundice frequently enlarges the organ, owing to pressure and enlargement in the bile-ducts by

swelling of the connective tissue around the branches of the portal vein in the liver. This form of enlargement is associated fortunately with a temperature and symptoms of apparent invasion which makes the diagnosis quite easy.

The progress of this form of trouble is somewhat slow, with many of the features of fibrosis, and it has been frequently so diagnosticated.

Cirrhosis of the liver in children and inflammation involving the fibrous tissues, capillaries, lymphatics or bile-ducts separately or combined, is no longer regarded as a rare disease, now that we have so vast a field for the collection of data; any one who has enjoyed a number of years of hospital experience, seeing many children, can so testify. Ten years ago it was taught that cirrhosis was one of the rarest diseases among children. Drs. West, Birch-Hirschfield and Henock call it absolutely rare. Dr. Palmer Howard, however, has collected more or less complete accounts of 63 cases occurring in children, and Dr. Marcus P. Tatfield, 93, reported during the past 50 years, which makes 156 cases, all told; so we are compelled to agree with Eustace Smith, a pioneer of the study of this disease in children, in the statement that there is reason to believe that hepatic cirrhosis is less uncommon with children than is generally taught.

The pathological division and subdivision of liver diseases have been confusing to clinicians and we will dismiss this portion briefly, confining ourselves strictly to the clinical picture of cirrhosis as seen in early life.

Interstitial hepatitis in infants is most probably syphilitic, of course inherited. I have never seen an exception to this rule. The stigmata in the inheritance is usually found on close investigation. In older children the disease may occur apparently without any other tissues being involved; yet it is the outgrowth of some systemic disorder. Alcoholism, the most frequent single cause, according to Dr. Dawson Williams, accounts for about one-sixth of all the cases in children. While this agent is so very destructive to adult livers, it cannot be so readily proven in childhood. It is not quite clear that "the sins of the fathers are visited upon the children." It is true, however, that among the users of alcohol, the young are indifferently cared for: irregular feeding, poor personal hygiene, making children cross and unhappy, necessarily to be quieted by gin, brandy and the various alcoholic anodynes to secure temporary comfort from the results of improper and irrational feeding. The amount of aromatic wines, cordials, essence of pepsin, gin, etc., systematically administered to infants by shiftless and ignorant parents to offset care and attention can never be known, except as we see the unfortunate results in the hospitals and dispensaries of our large cities. This factor in the production of cirrhotic livers in young children has never been sufficiently recognized and is no doubt the beginning of many of the wretched lives seen in dispensary and hospital work. It is not only found in the very poor, but in the underfed babies of the rich that are entrusted to careless or indifferent nurse-maids who are surreptitiously administering to their young charges gins and aromatic anodynes sufficient to secure the child's quietude, in order that their personal comfort may be attained. This is an evil that is rapidly growing, and needs wide recognition for its suppression.

General tuberculosis is sometimes accompanied by fibrosis of the liver, yet I am not quite sure to what degree; about one-third of the cases of hepatitis follow in the wake of acute infectious diseases, typhoid fever, measles and scarlet fever. I have seen one case which I thought was the sequel of whooping-cough. Dr. West mentions a box of six and Dr. Wettergren a boy of five suffering from interstitial hepatitis, both of whom were in the habit of drinking largely of coffee. Most of the cases of fibrosis of the liver in children are hypertrophic, except the alcoholic in the last stages. The organ is large, in color gray or orange-yellow, and finely granular. The large size of the liver is due to the fact that the hepatic cells do not atrophy nor does the fibrous growth retract. The symptoms of the two forms of hepatitis—the atrophic and hypertrophic—by reason of their different pathological conditions in the earlier stages cannot be clinically discriminated, and it is well for us to dismiss at once any efforts to do so that we may gain a proper conception of the trouble. The early picture of this condition is blurred by the ever-present evidence of the symptoms of indigestion, and this especially is impressive, as the disorder occurs among a class where personal hygiene is unknown or unrecognized. We will always find evidence of interference of nutrition chiefly affecting the portal circulation in hypertrophic fibrosis and the circulation of the biliary vessels in atrophic hepatitis; yet this characteristic cannot be seen early enough in many cases to be of especial value. The child will be a sufferer from the vague symptoms of indigestion for a long time, a veil that covers many errors. Restlessness at night for many months perhaps, flatulence, occasional vomiting, constipation alternating with diarrhea, evidence of dyspeptic diarrhea, with feverishness will be noticed; sallow skin, earthy in places, harsh and dry, elevated hair-follicles, with a putty-colored skin; soon come dark circles under the eye and loss of flesh, especially noticeable in the arms and legs. After this train of symptoms has existed for some months, improvement, alternating with many relapses, takes place. On closer scrutiny you will find the abdomen larger than usual and on palpation fluid will ofttimes be discovered. The first pronounced characteristic symptoms are, therefore, ascites, with wasted, waxy limbs, some edema ofttimes of the feet. The stigma of fine, dilated veins on cheek or nose or in the ear will ofttimes be a finger-board to our diagnosis. Larger veins are found on the abdomen, forming four or five large branches running

down from the xiphoid cartilage to the groin. These veins communicate above with the epigastric and internal mammary and below with the iliac and saphenous veins. The course of the blood is, therefore, from above downward. The dilatation may commence later than ascites and may continue long after it has ceased. Venous embarrassment is a certain evidence of portal obstruction. The stigma found on the face and ear and nose ofttimes is, of course, inherited, but it is also a fairly certain guide to the pathological changes going on within the child. The enlarged liver may be palpated, unless dropsy is extreme, and the enlarged spleen is better felt with the child on all-fours. The spleen is almost invariably disturbed in liver disorders and will be found to be somewhat beyond the normal size. The nose bleeds easily and occasionally hemorrhoids form or slight bleeding from the bowels is an associated symptom.

With this outline of cirrhotic liver in young children, I beg to append the brief histories of two that have been very recently under my personal observation. The one of alcoholic fibrosis is still under observation. The case is briefly, as follows:

Case I.—E., aged nine years; a healthy child, born of healthy parentage; was breast-fed up to six months of age, when the bottle-feeding was commenced. The grandfather is a sufferer from cirrhosis. The child being an only one received unusually careful attention from well-to-do patients, whose affection was so intense that it was ofttimes misplaced. Every whim was gratified and, unfortunately for the little patient, the grandparents' indulgence exceeded their wisdom; sweetmeats and various tastes of cordials were permitted from time to time, and at the beginning of the second year the first attack of catarrhal jaundice was ushered in, which continued more or less as an element of trouble for several months. This condition of gastric irritation was repeated from time to time in the last two or three years and is at present regarded as the almost constant feature of the child's trouble. The slightest irregularity in its dietary is bound to awaken some gastric distress, and if this is not promptly met the child drifts into a form of catarrhal jaundice with considerable irritation and wasting. These attacks have continued throughout the child's life up to the present time. We now find a liver considerably enlarged, with some ascites. The line of venous marking is very beautifully illustrated. The dilatation of the abdominal veins is as marked as in an advanced case of ovarian dropsy or chronic cirrhosis in the adult, with marking of the dilated veins in nose and face. The limbs are considerably wasted and the child's conjunctiva is muddy and slightly jaundiced; the tongue is pasty and the stomach rebellious. On palpation I found the liver down to the level of the umbilicus and quite large and tender. I have no doubt that we have in this case one of those chronic forms of hepatitis due to irregular and constant feeding, plus a great deal of the element of heredity that conspires to make this one of the earlier types of cirrhosis as found in adolescence. The symptoms are gradually but surely growing worse and associated with that physical decline is a striking change in the child's disposition; from a bright, lively, vivacious child she has become very sullen, given to fits of anger and sulking; and has lost, to a great extent, her desire for things childish and playful.

Case II.—Annie S., baby, admitted to my wards of the Philadelphia Hospital, December 1st, with the history of one week's illness which began with swelling of the legs and abdomen. This has since disappeared. She was an anemic, poorly-nourished baby of seven weeks, and weighed 8 pounds and 2 ounces. The face was covered with an eruption which was at first vesicular, then scaly. The hands, arms and legs were desquamating large areas of skin; the chest was covered with an eruption resembling urticaria, while the skin on the feet and legs was erythematous. The abdominal veins were large and distended, showing engorged portal circulation. The liver extended from the sixth interspace to three finger-breadths below the costal margin and from the ensiform cartilage to a line drawn to the angle of the scapula. The spleen was easily palpable, enlarged about twice its normal size. The heart-sounds were clear, regular, distinct. The blood examination microscopically showed blood dyscrasia marked. She nursed well, but in small quantities; temperature was hectic, varying from one to two degrees; stools were green. On the fourth day after admission the temperature was higher in the morning than in the evening; for the three days 98° to 103.6° F. No rigors were noticeable, nor did the child perspire. The child's face was then one raw surface, the superficial skin having peeled off. The skin of the buttocks and at certain places over the arms, legs, back, abdomen and chest had become vesicular, peeled off, leaving a raw, irritated surface. The child did not suffer much; cried only when dressed or handled; liver and spleen remained enlarged. On the sixth day the blisters had extended to and covered the greater part of the groin, buttocks and legs. The face was literally covered with blebs and was rather raw as the result of the bullæ bursting. Breath-sounds harsh, respiration accelerated, child did not sleep well, but had apparently no pain; seemed much weaker at night; temperature 104° F. Child died on the seventh day after admission.

Postmortem.—On inspection, liver was found to be 15 cm. by 10 cm. by 4½ cm. On the upper part of the anterior surface in the median line of the liver was a white patch, densely opaque in the center and shading out to the surrounding tissue. On incision, the opacity was found to extend inward about 2 mm.; probably a thickened capsule, otherwise no pathologic lesions were found. Microscopically fibrous changes were found in the ducts and the condition of true

cirrhotic change was found in the vessels and in the connective tissue surrounding the hepatic cells. The spleen was 8½ cm. by 4½ cm. by 2½ cm., enlarged 3 times its normal size. Capsule thickened. On section, no special pathological lesion was found. Liver weighed 230 grams; spleen, 45 grams. This was evidently a case of syphilitic fibrosis of the liver.

Recapitulation.—Briefly recapitulating, we may infer that cirrhosis of the liver in infants and adolescents is not so infrequent as clinicians infer, that cirrhosis in children can generally be relegated either to syphilitic or alcoholic types, with a very small percentage as sequelæ of the acute infectious diseases.

As a rule, the premonitory symptoms are disguised by a long train of gastro-intestinal irritation that renders an early diagnosis uncertain.

INTESTINAL OBSTRUCTION DUE TO GALL-STONES.[1]

BY LEWIS STEPHEN PILCHER, M.D.,
OF NEW YORK;
SURGEON TO THE METHODIST EPISCOPAL AND TO THE GERMAN HOSPITALS.

That a gall-stone, after having entered the intestinal tract, should by reason of its size become a cause of serious obstruction to the fecal current is a proposition that naturally might be greeted with skepticism, especially at this day when surgeons are frequently placing in the jejunum so large a foreign body as a medium-sized Murphy button with the confident expectation that after a few days it will appear at the anus, an expectation that is rarely disappointed. It may be remembered that as recently as 1898 there was reported to this Society by Dr. Elsner (Transactions Med. Soc. State of N. Y., 1898, p. 282) the case of a woman who passed by the anus two enormous gall-stones, the first one five and one-half inches in circumference and three inches in length, and the second one three inches in circumference and two inches long; an interval of about one year occurring between the appearance of the stones.

That so fortunate an ultimate result can not always be depended on must nevertheless be admitted. The statistics of Leichtenstern, given in Vol. VII. of Ziemssen's Cyclopædia of the Practice of Medicine, collected previous to 1875, are familiar to the present generation of readers. Among 1,541 instances of obstruction of the bowels from all causes collected by that writer, there were 41 which were due to gall-stones.

In the later statistics of Gibson (*Annals of Surgery*, 1900, XXXII., 486) such obstructions appear in still greater proportion. Among 1,000 operations for acute intestinal obstruction, compiled by that writer from the literature of recent years, in 40 instances the obstruction was due to the impaction of a large gall-stone within the bowel. In 1892 Kirmissen and Rochard (*Archives générales de Médecine*, February, 1892) were able to collect from all sources 105 cases of intestinal obstruction by gall-stones.

In my experience I have met with this condition but once. The account of this case is as follows: In August, 1898, a large well-nourished woman, about sixty years of age, was admitted to the Methodist Episcopal Hospital with acute intestinal obstruction. The symptoms had been developing with increasing intensity for two days. Previous to their inception she had supposed herself in good health; there had been no jaundice, nor other symptom to call attention to any lesion of the gall-passages. The attack had begun with pain in the umbilical region, followed by vomiting, and was regarded at first as a transient fit of indigestion. The vomiting, however, persisted and after twenty-four hours became fecal in character; the abdomen became tumid; the bowels were constipated. This was her condition when brought to the hospital.

Upon admission her general condition was good; the early appearance of the fecal vomiting suggested an obstruction in the nearer portion of the small intestine and the absence of shock and severe pain tended to eliminate the idea of any internal strangulation. As soon as the proper preparations could be made I opened the abdomen by a five-inch longitudinal incision in the linea alba, the incision beginning above the umbilicus and extending below it. Distended coils of small intestine presented in the wound. The systematic withdrawal of these through the wound upon the outside of the abdomen was begun, but after a very short time was arrested by the apparent adhesion of the loop that was being drawn upon in the depth of the abdominal cavity in the duodeno-jejunal fossa. The finger following down to the point of adhesion felt a hard mass in the intestine at the adherent point; the adhesions, which were recent and soft and not extensive, were readily separated and the loop containing the foreign body was brought to the surface. After the usual preparations for incising the bowel an opening was made into it at a little distance away through healthy tissue, through which the foreign body was removed. The intestinal incision was then sutured, the exposed loop was carefully cleansed and replaced within the abdominal cavity and the parietal incision was sutured except at its lower angle where an iodoform-gauze mesh was placed as a temporary drain extending down to the site of the intestinal suture. An uncomplicated recovery followed. I have frequently seen this woman since. She is in robust health.

The foreign body proved to be a large gall-stone, nearly spherical in shape, with an average diameter of about one inch and a circumference of three inches. Its size is not so great but one would suppose that it would readily have passed along the whole extent of the alimentary canal without producing any serious obstruction. The conditions which were revealed by the operation show that other causes than the mere physical blockade of the lumen of the intestine

[1] Read before the Medical Society of the State of New York, Oct. 15, 1901.

by the mass of the calculus contributed very materially to the final catastrophe. I would trace the sequence of these secondary causes in this order: The weight of the calculus was sufficient to prevent the free movements of the loop in which it was held; the mechanical irritation due to its prolonged retention at the most dependent point of this loop produced a circumscribed congestion of the underlying bowel-wall, favoring the transmission of infection and a resulting localized peritonitis which glued the loop, sharply bent upon itself into the depth of the duodenojejunal fossa, and thus added the condition of angulation of the bowel to whatever of obstruction the calculus had previously produced. The combination of the two conditions produced the complete obstruction, with the symptoms that led to operation.

It has occurred to me that this case is probably not exceptional, but is fairly typical of what must occur in many of the cases of intestinal obstruction from gall-stones. The conclusion seems to be a reasonable one that in such cases the final determining factor in the obstruction is not so much the bulk of the gall-stone as it is the secondary development of conditions at some point of the bowel-wall in the downward course of the calculus which lessen the contractile propulsive power of the bowel-wall. Such local paresis readily favors angulation and the progressive development of the symptoms of complete obstruction rapidly follows.

These stones enter the intestinal canal presumably by ulcerative perforation through the adherent walls of the gall-bladder and the duodenum.

In the literature of the subject it will be found that great diversity of opinion has existed as to the character and intensity of the symptoms which have attended the earlier evolution of these cases up to the time of the final attack of obstruction. That, as in the case of my patient, there should have been entire absence of any notable abdominal symptoms has not been unusual. Rarely do symptoms of obstruction arise at once upon the entrance of the stone into the cavity of the duodenum. Not until the lower portion of the small intestine is reached does the obstruction declare itself, as a rule. It is fair to ask why the stone should be arrested here if it has not been too large to pass along the higher portions of the intestinal tract. The dilatability of the intestine, the propulsive power of its muscular wall is not any less here than in the part already passed through. The thinner and less vascular coat of the ileum and the extreme mobility of its numerous coils render it, however, more prone to what I may call decubital irritation from the presence within it of a foreign body like a large gall-stone and the development of circumscribed peritonitis, with its attendant paresis and probable adhesions and possible acute angulation. I am inclined to assign therefore to "decubital irritation" the most important rôle in the causation of intestinal obstruction by gall-stones. I emphasize it in the present communication because its general presence and influence in the earlier course of these cases have not hitherto received that notice by writers upon this subject which they deserve, although the frequency with which necrosis of the intestinal wall and circumscribed peritonitis have been found in cases which have come late to operation, has been noted by observers.

The diagnosis of gall-stone as the cause of an intestinal obstruction must often be obscure and uncertain. This will necessarily be the case in those not infrequent instances in which the symptoms of obstruction declare themselves suddenly and without previous signs of a cholelithiasis. Most of the symptoms that attend the condition of gall-stone intestinal obstruction are at best suggestive rather than positive. The greater number of these cases occur in women over fifty years of age. The obstruction is in the small intestine and retroperistalsis is early induced, provoking copious vomiting that soon becomes fecal; yet without the signs of shock and early collapse that mark an internal strangulation. For the same reason excessive tympany does not develop. The obstruction may be incomplete and a chronicity or intermittence of the symptoms may mark the case. In a very considerable proportion of cases, over 50 per cent., according to Naunyn (*Klinik der Cholelithiasis*, Leipzig, 1892, p. 173), a spontaneous moving on of the blockading calculus is ultimately effected and recovery ensues without surgical interference.

All these symptoms, however, are quite as likely to be caused by an annular carcinoma and, with the exception of the intermittence or spontaneous relief of the symptoms, by internal hernias and constricting bands.

If in a given instance the physician could be positive that the case is one of gall-stone obstruction, he might be justified in adopting an expectant attitude. In the present state of intra-abdominal surgery, however, the onus of adopting such an attitude toward any case of intestinal obstruction has become a very serious one, since exploratory abdominal section *per se* has become established as a relatively safe procedure and since by such section alone can a positive diagnosis be made. The establishment of the diagnosis of the particular cause of any intestinal obstruction is, of course, in the line of scientific precision, and thoroughness and exactness of investigation to arrive at a conclusion are always to be employed before proceeding to the abdominal section, but it is not to be overlooked that this section is the most important means of diagnosis, while it at the same time opens the way for the application of the supreme means of relief.

Of the forty cases of operation for gall-stone obstruction gathered by Gibson twenty-one were fatal. The length of time that the symptoms of obstruction had existed and the general condition of the patient at the time she (three-fourths of the pa-

tients were women) was brought to the operating-table are unfortunately not given by Gibson for on these points must hinge considerations of the greatest importance. The tendency to death is generally by exhaustion and auto-intoxication; in some cases a general peritonitis develops and closes the case. Treves (Intestinal Obstruction, p. 329) gives the average duration of the final acute attack as seven days, the shortest period being four days, the longest fifteen days. It is obvious that if operative interference is to be attempted, the probabilities of success must steadily decrease with the lengthening of the time since the onset of the obstruction symptoms. The best results are only to be obtained by resorting to operation before the recuperative powers of the patient have become exhausted and while the local damage is still slight. As soon therefore as the symptoms of obstruction are positive, whether the presumption of a gall-stone as its cause is entertained or not, the surgeon is justified in opening the abdomen, first as a diagnostic —and secondly as a therapeutic procedure. The presumption that the cause of obstruction is a gall-stone should not induce the adoption of the policy of delay in the hope that the obstructing body would eventually pass, but such a presumption may rather stimulate to early operation, for it creates the expectation of encountering a condition, when once the abdomen is opened, which is readily and quickly amenable to simple surgical efforts.

Doubtless if this recommendation is followed some cases will be operated upon that would have recovered if they had been left alone; possibly some operative fatalities may also occur among these same cases; but the proportion of operative fatalities among patients unnecessarily operated upon will bear but an insignificant relation to the increased number of operative recoveries among patients who but for this early interference would have died as the result of gall-stone impaction.

PERCUSSION OF THE LOWER BORDER OF THE LIVER.

BY ALBERT ABRAMS, A.M., M.D.,
OF SAN FRANCISCO.

The value of regional hepatic percussion needs no expatiation. No one however skilled in percussion can gainsay the insurmountable difficulties which beset the clinician in his attempts to demarcate an organ which is immersed in an atmosphere of tympanitic sound, and the edge of which does not exceed one centimeter in thickness. Take into consideration the facts that the contiguous viscera, stomach and intestines, vary in their degree of inflation and in the character of their contents, and we have additional factors which modify the accuracy of our percussional results. Posture and the phases of respiration are likewise disturbing elements. A liver may be very much enlarged, yet percussion as ordinarily practised may give absolutely no evidence of enlargement, if examination is made in the recumbent posture. A good rule to follow is never to declare the liver to be enlarged unless it is palpable; but palpation may detect a liver which is dislocated though not necessarily enlarged; and, again, rigidity of the abdominal parietes may negative the value of palpation.

In my "Manual of Diagnosis" I have referred to two methods of determining the lower border of the liver. One method is that described by C. Verstraelen, which is based on the fact that the intensity of the heart tones is well preserved over the entire hepatic region; at the lower border of the liver, however, the tones are suddenly lost; and in this way the lower liver border is determined. The abdominal walls must be relaxed, otherwise they will conduct the heart tones. This method I consider imperfect, as it is never of value if the cardiac tones are weak. Another method which I advocated in the same book is as follows: The patient is placed in a position favoring the approximation of the liver to the abdominal walls. This position is the knee-elbow one, or, if this is impossible, the erect posture, the body being inclined forward. The edge of a large coin is then deeply embedded in the abdominal walls, and the free edge of the coin is percussed lightly and shifted gradually upward from the tympanitic area until dulness is elicited. If this dulness represents the liver border, then, in accordance with the fact that the liver undergoes respiratory dislocation, the line of dulness will be lower during inspiration and higher during the act of expiration. The essential object embodied in this method is to verify the correctness of the percussion by dislocation of the organ during respiration. The latter method is relatively inaccurate, as I have had occasion to observe by controlling the percussional results by palpation in numerous instances where the latter method was easy of attainment.

A simple maneuver for mapping out the lower liver border on the surface of the abdomen is as follows: The patient is instructed to incline his body backward as far as possible and, to relieve the tedium of the posture, the body is supported by means of the hands resting on the hips. If percussion, which must be light, is now attempted, the difficulty of determining the lower hepatic border is reduced to a minimum.

If we analyze the rationale of this maneuver we will find that it involves a simple law in physics, viz., that sound waves are best conducted by the medium in which they are produced. If the waves of sound are compelled to pass through media of different density, some of the waves will be lost by reflection and the sound becomes correspondingly enfeebled. Solid bodies conduct sound better than air. If percussion of the lower liver border is executed in the conventional manner, the percussion sound first passes through the relatively-dense abdominal musculature and then through the air-containing viscera before it reaches the liver. Theoretically at least, the percussion sound becomes enfeebled by the time it reaches the liver inasmuch as the high

pitch which reveals anything solid is dependent on the loudness of the percussion note, which in turn depends on the force exerted in percussion. We dare not employ a strong percussion sound in mapping out the lower hepatic border, for, by so doing, we set in vibration the air contained in the neighboring viscera and defeat the original object of our percussion, viz., the elicitation of a dull sound. In the posture suggested, we approximate the surface of the liver to the abdominal parietes, thus affording a like medium for the transmission of the percussion sound. When patients are compelled to assume a recumbent posture the same object may be achieved by directing them forcibly to contract the abdominal muscles during the time percussion is executed. The results by the latter maneuver, however, are less accurate, though relatively better than by the conventional method of percussion.

Percussion of the liver while the abdominal muscles are contracted is a valuable means of ascertaining sensitiveness of the liver. It is a better method than palpation, which only admits of testing the sensitiveness of the lower border of the liver. I am cognizant of the dictum of Frerichs, who directed attention to the fact that contraction of the abdominal muscles will frequently yield a dulness on percussion which is likely to be confounded with the dulness of the liver. This objection is to my mind purely theoretic. There is one condition, however, which demands consideration in percussion of the lower liver border and that is the presence of fecal concretions in the intestines contiguous to the liver border. The observation is undoubtedly correct that no one should rely on the results of liver percussion unless the bowels have been previously cleared by free purgation. This teaching applies with all cogency to the entire abdomen. Experience has taught me the following simple method of determining the presence of fecal matter: If by palpation or percussion we suspect the existence of fecal stasis—massage of the suspected area for a few seconds will dissipate the dull percussion sound, which will then be supplanted by a tympanitic percussion tone. It is therefore imperative, before determining the lower border of the liver by the maneuver already suggested, to massage that region for several seconds.

There are two additional facts which deserve mention: First, the patient must be cautioned to take no inspiration before contracting the abdominal muscles, for by so doing the liver will be dislocated downward; second, in practising percussion, the finger receiving the percussion blow must be firmly embedded in the abdominal wall; otherwise, the blow will not be directly transmitted to the liver.

Sir William MacCormac's Successor.—Dr. F. W. Pavy, F.R.S., has been elected to the office of president of the National Committee for Great Britain and Ireland of the Fourteenth International Congress of Medicine, to fill the place of the late Sir William MacCormac, who had enjoyed this honor for many years.

TUMORS OF THE LIVER.[1]

BY GEORGE RYERSON FOWLER, M.D.,
OF NEW YORK.

Neoplasms of the liver occurring as primary growths are very uncommon. They may spring from the epithelial structure, adenomata and carcinomata representing this type, or from the connective tissue, as represented by fibromata, fibro-neuromata, and sarcomata. Secondary carcinoma follows a primary growth in the stomach in about 25 per cent. of the cases.

Echinococcus Cysts.—The embryo of the tenia echinococcus gains access to the various organs of the body by means of the chyle through the thoracic duct and vascular system. The liver is particularly predisposed to the parasitic development, the embryo gaining access through the portal vein, where it forms the most common tumor of the liver, with the exception of carcinoma.

In typical cases a soft, fluctuating and insensitive tumor is found in the region of the liver, which rises and falls with the movements of the diaphragm, providing there are no adhesions to the abdominal wall. The so-called hydatid thrill of Santorini is a peculiar vibration supposed to be caused by movements of separate cysts ("daughter cysts") within the firm capsule of connective tissue which encloses the cyst proper. It is elicited by striking the tumor with the finger-tips, the other hand being placed upon the tumor at a distance. It is not always present. Jaundice is not a common symptom, and is only present when compression of the bile-ducts occurs. The chief symptoms of echinococcus cyst are a feeling of weight in the region of the tumor, and, if the tumor is large, there is some interference with respiration, as well as digestive disturbances from pressure upon the stomach and intestines. These cysts may reach enormous proportions and rupture occur. The rupture of the cyst may take place in the stomach or intestine, thus leading to a spontaneous cure. Rupture into the blood- or lymph-vessels may take place, particularly into the vena cava, and prove immediately fatal. Rupture into the peritoneal cavity may cause fatal peritonitis. If the patient survives this accident, an extensive development of cysts follows. Rupture into the pleura, lung, pericardium or mediastinum, as well as accidental microbic infection, with resulting suppuration and sloughing of the sac, are events fraught with danger which occur in the clinical history of these cysts. Bile may enter the cyst and render it sterile by destroying the parasite, thus producing a spontaneous cure in time.

The diagnosis of echinococcus cyst of the liver may be determined by an exploratory puncture. A clear fluid, either neutral or alkaline in reaction, free from albumin and rich in sodium chloride, and containing succinic acid, is obtained. Microscopical examination sometimes

[1] Read before the Medical Society of the State of New York, Oct. 15, 1901.

reveals the knob-like heads, or scolices, and hooklets of the parasite in large quantities.

The treatment of echinococcus cyst of the liver is of an operative character, and consists in excision by partial hepatectomy, whenever feasible, by either the abdominal or transpleural route. R. S. Fowler operated at one sitting, carefully emptying the cyst by aspiration after exposing it, and then after isolation of the liver by large gauze pads, removing the cyst-wall and a thin slice of the adjacent liver substance by means of the thermocautery. Five cases operated upon by this method in my hospital services have all recovered promptly.

In large tumors with many adhesions this radical procedure may not be practicable, in which case the fibrous capsule may be sewn to the edges of the abdominal incision, and the operation completed by opening the sac at once, or the latter may be postponed for three or four days. The cyst-wall may be removed in part or entirely; it frequently sloughs away and may be removed piecemeal at subsequent dressings. In cases in which the cyst is too adherent for removal, final obliteration may be brought about by injections of diluted tincture of iodine (1 to 8). Aspiration of echinococcus cysts and injections of various solutions, or leaving a cannula *in situ* for permanent drainage, are not justifiable procedures.

Simple or Non-Parasitic Cysts of the Liver.—These are of very rare occurrence. Probably a majority of those reported have been sterile hydatid cysts. Those not belonging in this category probably have their origin in dilated lymph-vessels. An exploratory puncture will readily settle the differential diagnosis between echinococcus disease and simple serous cyst, the presence of albumin and the absence of hooklets constituting the characteristic features. The treatment consists of evacuation of the contents of the cyst after drawing the latter through an abdominal incision made over the more prominent portion of the tumor, and suturing the edges of the opening in the cyst to the margins of the abdominal wound, thus establishing permanent drainage. Large cysts that are free from adhesions may be to a large extent extirpated, any remaining portions being attached to the abdominal wall.

Multilocular Cystic Disease.—This is a condition similar to multilocular cystic disease of the kidneys, with which it has been found to be associated. It occurs almost exclusively in elderly persons, or those over sixty. It is of but slight surgical importance, save from the standpoint of differential diagnosis, since the involvement of the entire liver precludes operative interference. It is a very rare pathological condition. In almost all the recorded instances the diagnosis has been made postmortem.

Cystic Adenomata of the Liver.—These arise either from the epithelial cells of the liver or the intrahepatic bile channels. One or more cysts may be present. König and Schmidt have each recorded a successful case in which a cystic adenoma of the liver was removed by operation. To these I have to add a third, from my own experience, the tumor, the size of an English walnut, appearing prominently in the epigastrium. A median incision was made, the tumor exposed and removed, together with a portion of the surrounding liver substance, by means of the thermocautery. The patient, at the end of three years, has not suffered from a return of the growth.

Dermoid Cysts of the Liver.—As an isolated affection, these are unknown. In the case described by Hulke the dermoid tumors of the liver occurred in association with dermoid tumors of both ovaries. It would scarcely seem warranted to assert that the tumors of the liver were secondary to those of the ovaries. The discovery of a dermoid cyst of the liver in the course of a laparotomy, for it is probable that only in this way a diagnosis would be established, should be followed by a dissection of the entire tumor from the hepatic tissue. If this is found to be impracticable the same course may be pursued as recommended in large and adherent echinococcus cysts, namely, evacuation and suturing of the edges of the incision to the margins of the abdominal wound. Cases in which suppurative changes have taken place should be treated as abscesses of the liver.

Angioma of the liver occurs as a localized tumor of variable size situated beneath the capsule of Glisson, and consisting of diseased blood-vessels. The disease is of but slight surgical importance. Growths that are of congenital origin soon destroy the patient, while the acquired cases are innocent in character and do not demand treatment, although Eiselberg removed such a growth from the right lobe of the liver by means of the thermocautery.

Fibromata and *adenomata* of the liver are of interest surgically principally for the reason that growths of this kind are the foundation for primary sarcoma and carcinoma of the liver. The probability of this serves to emphasize the importance of definitely exploring and broadly extirpating any tumor of the liver springing from either the epithelial or connective tissue structure in as early a stage of its development as possible.

Botyroid Liver, so called from its resemblance to a bunch of grapes, is a condition which is the final result of a syphilitic hepatitis. The changes in the liver are permanent and possess no surgical interest.

Accessory Lobes.—Occasionally these may become sufficiently hypertrophied to be mistaken for new growths. Keen attributes such a case to Martin, of Birmingham, in which the growth was supposed to be a renal cyst until an abdominal section revealed its true character. The base of the lobe was ligated and the gall-bladder removed with the mass. Recovery followed.

Syphilitic Gummata may break down and find their way to the surface, thus simulating a neoplasm of the liver. These should not be made

the subjects of operative attacks, unless the administration of potassium iodide has failed to ameliorate whatever symptoms they may produce.

It is customary to consider *floating* or *movable liver* in connection with tumors of the liver. This condition is either congenital or acquired. In the latter event it is due to tight lacing, or to dragging upon the organ by an enlarged gall-bladder, or it may be secondary to large tumors. In lacing liver the constricted portion becomes movable. The congenital variety is usually associated with enteroptosis. The mobility depends upon the lengthening of the suspensory, lateral and coronary ligaments; in rare instances the latter are absent. It occurs much more frequently in women than in men. In extreme degrees of mobility there is more or less continuous distress and exacerbations of severe pain; jaundice may be present at times. Digestive disturbances are common. Examination discloses a movable tumor the size and shape of the liver and resonance in the hepatic region. In lacing liver the constricted lobes may be united by suture, as suggested by Billroth, followed by Hacker, Fecherning, and others. In a case of congenital origin which came under my care over two years ago, the patient then being twenty years of age, an excellent result was obtained and maintained by fixation to the diaphragm and the sheath of the right rectus muscle through the medium of the broad surfaces of the greatly lengthened suspensory ligament. Kangaroo tendon sutures were employed.

MEDICAL PROGRESS.

PATHOLOGY, BACTERIOLOGY AND HISTOLOGY.

Formation of Poisons in the Organism.—Of the many substances which have a deleterious influence on the red blood-cells, only a few are known as organic or inorganic poisons. In the numerous diseases in which one can observe only the destructive effect on the blood-corpuscles, but little is known of the nature of the toxins themselves. E. GRAWITZ (Deut. med. Woch,. Dec. 26, 1901) differentiates two processes which may bring about a hemocytolysis. The first is dominated a "plasmotropic" effect and may be considered as due to toxins which, while leaving the corpuscles in the circulation intact, destroy the same in the liver, the spleen, and the marrow, without there being an extrusion of hemoglobin into the plasma. The other he calls "plasmolysis" and includes those poisons which cause a disintegration of the red cells in the circulation with the appearance of a hemoglobinemia and its sequelæ. The type of the former class is lead, which causes a granular degeneration of the red cells in the organs, but no plasmolysis in the circulating blood. A similar phenomenon was observed in patients subject to hemorrhages from gastric ulcer or carcinoma or who had swallowed a large amount of blood from a pulmonary hemorrhage, the condition disappearing when the bleeding had ceased. In patients with external hemorrhages this was not found. The administration of various hemoglobin preparations also caused a granular degeneration of the red cells, increased by continued and larger doses, and disappearing when the drug was stopped. The author believes from his clinical experience that the passage of blood or preparations of blood through the intestinal tract causes the formation of substances which exert a true plasmotropic influence on the red cells. These observations may also serve to explain the anemia found in anchylostoma infection, in which not only the actual loss of blood from continuous hemorrhages must be considered, but also the auto-intoxication from the absorption of poisons developed in the extruded blood.

Amebic Abscess of Liver.—Of clinical interest in this case reported by J. A. SCOTT (Proc. of the Patholog. Society of Philadelphia, Nov., 1901) are a large latent abscess with no history of previous dysentery, sudden rupture into right pleural sac, with all the signs of acute hemorrhagic pleurisy, and the development and subsequent disappearance of a pyopneumothorax. The pleural exudate was a thin brownish-red material, with a heavier brownish flocculent sediment, containing fatty leucocytes, but no amebæ, and sterile on culture. At autopsy amebæ were found by Dr. Flexner in the wall of the abscess; there was great thickening of the pleura above the abscess, and in the colon were found pigmented scars of some former ulceration (dysentery).

Hematic Antidotes.—Probably no author has been more active in developing the theory of hematic antidotes than Ehrlich. PROFESSOR GRUBER (Med. Press and Circ., Dec. 25, 1901) reviews the whole matter in the following terms: Ehrlich believes the action of antitoxins on toxins depends purely on the nature of a chemical transposition of elements which can be demonstrated according to the law of multiples. Concentration and temperature largely influence the results, although the toxins under any condition have the notable power of diffusion in gelatinous media. An excellent parallel of this action is to be found in the union between saponins and cholesterin of the blood-serum. This combination destroys the hemolytic action of the saponins. It must be borne in mind, however, that the combination of toxins and antitoxins does not abolish their individual existence. If the mixture be heated to 68° C. the poisons will be found as active as ever, although a considerable time may have elapsed. Therefore one must conclude that the union is not chemical. Furthermore, this explains why in some cases after combination poisonous effects are seen after injecting animals with the fluid. Another property of the toxins is that their power decreases on standing. If the animal does not die an apparent latent period appears before the paralysis and edema set in. This modified toxin he has named toxone and a still further modification he has called toxoid. He assures us that the bacillus of diphtheria produces toxins and toxones and that the latter may be converted into toxoids. Another property of these organic poisons is their great power. One-fourth of a milligram of bacterial poison will kill a man, while it will take seventy of strychnine. Notwithstanding this deadly effect, the dose, or even a larger dose, will go through a period of incubation lasting in some cases many weeks. It seems also a fact that the more sensitive an animal is to the poison, the more quickly the injection is worked out of the blood-current into the general system. Again, if the animal is injected with tetanic and antitetanic toxin at the same time, it will be found that the same quantity of the latter is required to neutralize the former as in the laboratory experiments *in vitro*. If, however, seven or eight minutes elapse before injecting the antitoxin, its quantity must be largely increased until fifteen minutes have passed, when the serum dose seems to have be-

come stationary and usually inert against the toxins. In susceptible animals the poison passes so rapidly out of the blood into the system that death occurs before antitoxin can have any effect. In some cases tetanic toxin taken from the brain of susceptible animals is inert, although that recovered from other organs is still active. Ehrlich explains this by stating that it combines with various salts in the nervous system, which render it temporarily inactive. The incubation period for these toxins varies with the mode of injection. Subcutaneous and intravenous injections have much longer incubation periods than intracerebral applications.

Elastic Tissue in Cicatrices.—The question of proliferation of elastic tissue has been much discussed. Guttentag of Unna denied the presence of elastic fibers in cicatricial tissue; Passarge, Kromejer and others assert that they appear after a time in the newly-formed tissue; some observers believe them to be derived from the elastic fibers in normal tissue, others that they have their origin in the connective tissue cells. P. Pezzolini (Gazz. degli Osped., Dec. 22, 1901) through a series of experiments has proved their derivation to be from adult elastic fibers. Wounds of uniform size were produced in dogs, some of which were allowed to heal in the regular course of cicatrization; in others skin grafts were introduced. After the wounds were healed, specimens including the cicatricial and surrounding tissue were excised, and, after preparation and staining, examined under the microscope with the following findings: The first appearance of new elastic fibers was from the sixtieth to seventieth day, the number varying according to the age of the cicatrix; they were first seen at the lateral margins of the cicatrix, while their development in the center was much delayed, except in those wounds in which adult elastic tissue had been introduced by grafting, in which case, simultaneously with the formation of fibers from the elastic tissue of the surrounding skin, new fibers were formed from the transplanted elastic tissue of the graft. The author was able to observe the division of the ends of the cut elastic fibers, and their development and extension into the connective tissue of the cicatrix.

SURGERY.

Treatment of Inoperable Tumors.—Of the several injection methods for the treatment of inoperable malignant growths, the results obtained from the use of methylene blue and Coley's mixture in a series of cases are reported by C. George (Phil. Med. Jour., Jan. 11, 1902). Methylene blue was used in two cases of sarcoma of the neck. The injections were given daily in gradually-increasing doses of from five to thirty minims of a 1 to 500 aqueous solution directly into the tumor. A marked diminution in the size of the tumor was noted, with some relief from pressure symptoms, but there was an excessive stimulation of tumor cells in the neighborhood. Both cases terminated fatally. Coley's mixture of the toxins of streptococcus erysipelatis and bacillus prodigiosus was used in four cases, sarcomas of the upper jaw, forearm, mandible, and lymphosarcoma of the neck. In all cases there was increased growth due to the irritant action of the toxins and the absorption of the latter, together with the products of the necrotic changes, caused general weakness and depression. One case which seemed improved was an ordinary granulation tissue tumor, with no evidence of sarcomatous tissue in it. As the diagnosis between round-cell sarcoma and ordinary granulation tissue is difficult, there is a question as to whether certain cases reported improved were in reality true sarcomata.

Acute Pancreatis with Fat Necrosis.—An interesting case is reported by W. J. Mayo (Jour. Amer. Med. Assoc., Jan. 11, 1902). The patient had suffered from attacks of indigestion for two years previously when he was seized with sudden epigastric pain, accompanied by marked symptoms of collapse. Acute intestinal obstruction developed, with other signs upon which a diagnosis of gangrenous cholecystitis with perforation was based. Operation was done. The signs of fat necrosis were evident. The pancreas was found enlarged, the gall-bladder thickened and containing a stone as large as an egg. The stone was removed, a rubber tube inserted into the gall-bladder and brought out in the right groin. A free discharge lasted for several days, containing both pancreatic fluid and bile. The patient was in a critical condition for a week, but made a complete recovery in seven. The gall-stone was evidently the cause of cholangitis, which extended to the pancreatic ducts, with resultant pancreatitis and fat necrosis, the operation checking the process short of abscess formation.

Colon Transplantation.—Not only the magnitude of the operation itself, but the very unfortunate condition of a patient subsequently afflicted with an artificial anus, have hitherto largely discouraged attempts at extensive resection of the colon. De Quervain (Rev. Méd. de la Suisse Rom., Dec. 20, 1901) has suggested a new operation which seems at least to obviate the necessity of the preternatural anus. He was led by the researches of Kummel on the vascularization of the colon to believe that considerable division of the mesocolon was still compatible with the life of the gut. In a case in which he was compelled to resect the descending colon, therefore, he freed the mesocolon and sewed it to the rectum with very perfect results. He believes that the rectum might be extirpated and the gut carried down and implanted at the anus. The operation is indicated only in cases of extensive malignant or mycotic disease of the descending colon, or of incurable polypoid colitis, or of combined disease of rectum and colon.

Fracture of the Lower Jaw.—The variety of splint recommended for fracture of the lower jaw is proof of the difficulty of treating this common injury. J. Weiting (C'blatt f. Chir., 1901, No. 51) had a difficult case of this kind and treated it in the following manner: A kick from a horse had caused a threefold break in the bone, one on each side at about the same point, plainly visible and palpable from the mouth, with all the typical symptoms. The third break was complicated and between the incisor and the eye teeth. There was moderate overriding of the fragments. After numerous failures to maintain reduction with various kinds of rubber splint, he carried out the following procedure: A hole was drilled through the alveolar margin, a little to the left of the median line, near the point where the mucous membrane is folded over between the bone and the lip. Through this hole a long silver wire was passed and wound on the left side about the canine tooth. In this way the drilling of a second hole was avoided and, moreover, the oblique direction of the silver wire aided in correcting the overriding and displacement of the fragments at this point. Thus, therefore, one of the fractures was reduced and fixed. It was found that by pulling upward lightly on the wire perfect reduction and fixation of the other two breaks was brought about. This suggested the plan of taking a strip of zinc, bending it into a hoop and passing it around the neck on a level with the body of the lower jaw. Here it was retained by a plaster-of-Paris helmet bandage which extended from the brow to the root of the neck. The hoop of zinc passed out of the bandage opposite the chin, where the silver wire previously described was fastened in notches. In this way with the least possible inconvenience to the patient a cure was obtained. So inge-

nious and rational a device to overcome a difficult surgical problem is worthy of note and trial.

Oophorectomy for Mammary Carcinoma; Another Version.—According to views recently expressed at St. Bartholomew's Hospital, this new mode of treatment has not all the advantages which have been claimed for it. H. T. Butlin (Brit. Med. Jour., Jan. 4, 1902), in beginning his argument against it, says: "Before I speak of the cases in which the operation and thyroid extract have been employed, I must draw your attention to his (Dr. Beatson, of Glasgow) theory. He considered cancer of the breast to be a local proliferation of epithelium, and he said that when the cells had proliferated and increased in number they gradually swarmed out into the surrounding tissues and produced the microscopical structure of cancer. He said there was no parasitic character to the disorder. He began to wonder how, within the bounds of this premise, the disease might be limited. In ordinary lactation there is a similar proliferation of epithelium, but with this difference—the tissue, instead of heaping up in the ascini, as in carcinoma, undergoes fatty degeneration and passes away as milk. During this physiologic process the woman never menstruates. With very unusual ingenuity he argued that similar conditions might be produced by removing the ovaries and the piling up of the cells in the ascini stopped." This is, in effect, Dr. Beatson's theory. Dr. Butlin then reviews the rather unpromising history of the cases treated by the new method and closes by saying that the evidence so far all pointed toward the desirability of local treatment and that in all probability Dr. Beatson's method would never supplant this operation, no matter what might be the effects of employing them together. This observation he bases on the following conclusions: (1) The hope that can be given to a goodly number of women nowadays that operation may be quite successful. (2) If the disease still kill the patient, it may do so by recurring in some distant organ and with much less pain and suffering. (3) If it recur *in situ* in the form of nodules, the patients generally suffer far less than if no operation had been performed.

Burns from Roentgen Rays.—Since the Roentgen rays have been so generally employed for diagnostic and therapeutic purposes, the peculiar but characteristic effects of prolonged use of these rays upon certain people have become an important subject for investigation and treatment. C. Beck (Med. Rec., Jan. 18, 1902) says that the most characteristic difference between ordinary burns and integumental changes produced by the Roentgen rays is the fact that the latter do not manifest themselves before the lapse of a period of incubation, as a rule, after about two weeks. This latent period in burns of the first degree is followed by a hyperemic stage, at first light, later dark, and, finally, becoming brown and scaly. After a few weeks there is complete recovery sometimes followed by pigmentation. In the bullous form intense reaction occurs and depilation if the area was covered by hair. Pigmentation and teleangiectasis nearly always remain. In the necrotic type reaction appears within a few days and requires months for its cure. The constant contact with these rays, which many are obliged to subject themselves to in running machines, has resulted in the so-called terracotta hands. The skin is wrinkled, shriveled, vulnerable and partially cracked, the nails horny and the phalanges so much thickened that there is tension when motion is exercised. The specific action which seems to be due to these rays has been taken advantage of in the treatment of various skin diseases and also in malignant tumors. The value of them is still somewhat uncertain, but their marked bactericidal properties cannot be doubted any longer. Many valuable hints for rational therapy of bacterial diseases will certainly be forthcoming. In regard to precautions it may be said that the healthy skin surfaces should be protected by tin-foil or lead plates during the process of irradiation for therapeutic purposes. The treatment of the burns is the same as for ordinary burns of a similar character.

Omental Anastomosis for Cirrhosis of the Liver.—Numerous cases have been reported of recoveries from the symptoms of cirrhosis by surgical treatment and the operation is now rather frequently performed. T. C. Witherspoon (St. Louis Med. Rev., Jan. 11, 1902) reviews the literature on the subject and advises a more certain and general formation of adhesions between the surface of the liver and diaphragm. The incision may be made, under cocaine, above the umbilicus; before the omentum is sewn to the anterior abdominal wall the peritoneum around the wound should be scrubbed thoroughly with a piece of gauze, and it is of decided value also to rub off the liver peritoneal cells just under the diaphragm to allow of adhesion of this organ to the wall. Undoubtedly this improves the circulation of the liver superficially and may put off the day when the necessary liver incompetency appears and auto-intoxication arises. The parietal peritoneum may be separated around the wound and the omentum tucked beneath it to secure more perfect union, or the peritoneum may be excised for a variable distance and the omentum attached to the denuded surface.

Treatment of Appendicitis.—The mortality from appendicitis is certainly much higher than it should be and when young men and women in the prime of life and with excellent health are carried to their graves after an illness of only four or five days the medical profession must realize that their duties have been very poorly performed and upon their shoulders rests the responsibility for these untimely deaths. J. H. Carstens (N. Y. Med. Jour., Jan. 18, 1902) refers to the prevalent idea that, if the patient is put upon a starvation diet and the inflammatory process allowed to subside, he will be better able to stand an operation. It is true that in many mild attacks this treatment will be satisfactory, but in the present stage of diagnostic skill it is impossible for one to determine the exact condition within and even with mild symptoms a gangrenous process or an abscess just ready to rupture may be present. Furthermore, after a starvation diet of two or three weeks, especially if an infective process has been present, the patient's condition is certainly not improved nor are the local processes more favorable for removal. With our present knowledge the only conservative treatment which is safe is immediate operation as soon as the diagnosis is made, for it is most radical for any physician or surgeon to dare to leave such a treacherous condition within the abdominal cavity of his patient.

Primary Abdominal Tuberculosis.—Although tuberculosis undoubtedly originates in a large percentage of cases in the respiratory tract, it can be no longer denied that primary tuberculosis of the belly is a frequent condition. L. F. Flick (Penn. Med. Jour., Dec., 1901) believes that the bacilli are often taken in with the food and are absorbed by the intestinal lymphatics and lodge in the mesenteric glands. They probably do not multiply in the intestinal canal, for the conditions there are not favorable to their growth. Since the suggestion and partial proof have been offered that bovine tuberculosis is not communicable to the human being, this theory of intestinal infection becomes less plausible and yet there are so many ways that the dried infected human sputum may contaminate food and drink that such an infection does not seem at all strange. The

treatment of such cases is, of course, surgical and the important part of it is to expose the abdominal cavity as much as possible and manipulate the contents with the greatest freedom. Dr. J. Price recommends the free use of iodoform in these cases and says that he has used even an ounce in one case without any disagreeable after-effects.

The X-ray in the Treatment of Sarcoma.—This method is advocated in inoperable cases and also as a prophylactic against recurrence in patients who have been treated surgically, by W. A. Pussey (Jour. Amer. Med. Assoc., Jan. 18, 1902). He reports a case in which a clinical and pathological diagnosis was made of a small round-cell sarcoma of the neck. Operation was done, but shortly afterward a similar tumor appeared on the other side of the neck. X-ray exposures were tried for twenty-one days, with a hard tube and a weak light, about 5 cm. from the surface and for from ten to fifteen minutes at a time. Toward the last a pronounced dermatitis developed; the exposures were then stopped. Within ten days of beginning treatment, the tumor had shrunken and motion was freer, and when the exposures were discontinued only a small (almond-sized) gland remained, freely movable and painless. Up to date (Jan. 12, 1902) no change had taken place. In a second case, one of osteosarcoma of the shoulder, far advanced and accompanied by profound cachexia, no improvement was noticed except relief from pain. In a third case of inoperable sarcoma of the pectoral muscles and the shoulder, a like result was observed. Both patients were evidently beyond the reach of any form of treatment. In two cases of Hodgkin's disease which were subjected to a series of X-ray exposures it was found that the further growth of the enlarged glands was inhibited and they themselves became reduced in size.

Intraperitoneal Rupture of the Kidney.—This serious surgical condition is not very uncommon and always deserves prompt, radical treatment. F. de Quervain (Deutsch. Z'schrift f. Chir., Dec., 1901) has been experimenting on animals with reference to the diagnosis and the treatment of damage to the kidneys. The following are his conclusions: The differential diagnosis between intra- and extraperitoneal rupture of the kidney, on the one hand, and, on the other hand, damage to other organs of the body, individually or as complications of the former, presents very great difficulties; consequently, it is often necessary to be satisfied with a probable diagnosis. Further progress must be made, especially in determining a damage to the peritoneum by urine and blood, leading to an infectious peritonitis. Such may also come from rupture of the bowels. We are not aided much in this particular by the usual diagnostic aid of the blood-examination. It is also necessary for the sake of prognosis to distinguish between very great damage to the organ and lesser degrees of contusion. In both damage to the diaphragm and the danger of bleeding are important, because within the abdomen bleeding finds no real obstacle. As a rule, however, there is only danger of grave injuries or of peritonitis through infection. The severe cases usually die early from the loss of blood and from shock. Consequently, peritonitis is not often the cause of death. In the less severe cases the picture is somewhat different because not only is the danger from bleeding much less, but the whole process is slower and permits the formation of adhesions which localize the abscess. In the treatment of this condition it seems far wiser not to interfere in the mild cases, but they should be carefully watched. If unfavorable symptoms develop, indications for treatment may be followed. The severe cases, on the other hand, should be operated on as quickly as possible, so that the sources of hemorrhage may be reached and checked and all possible damage to the other organs of the abdomen repaired.

Intestinal Anastomosis.—Suture of the intestines, especially after the removal of part of them, has been an interesting problem for many years. J. Frank (Ann. of Surg., Jan., 1902) compares the mechanical method with the so-called suture methods of uniting the bowel and lays down the following essentials for making the operation successful: Simplicity of application, saving of time, uniformity of coaptation, arrest of hemorrhage, slight contraction of scar, proper relation of coats of the intestine at the point of union, avoidance of infection, least disturbance of peristalsis, avoidance of pocketing and shelving, reduction of mortality, and minimum number of lesions. The majority of these are self-explanatory and, therefore, need no further comment, except that, after recognizing them, the following conclusions may be drawn in favor of the mechanical means of anastomosis: (1) With no other method can be obtained all the excellent qualities in such an ingenious combination as with the Murphy button. (2) No suture method can show such a low mortality. (3) The perfect holding together of the intestinal ends throughout their circumference with the Murphy button obviates the danger of leak. Von Chlumski subjected all the methods to pressure with water and demonstrated the inferiority of the suture methods. For end-to-end anastomosis the button is the only device which has achieved great triumph. In this operation the suture methods show their greatest mortality.

Stitch Abscesses.—These annoying abscesses depend usually upon two conditions, namely, the state of the surgeon's hands and the preparation of the patient's skin. A. E. Maylard (Ann. of Surg., Jan., 1902) says that he has found the best means of sterilizing the hands to consist in plunging them for five or ten minutes into water as hot as can be borne. The effect of this is to dilate the capillary vessels as is indicated by the redness of the skin and thus to excite active secretion of the two sets of glands. By the prolonged exposure to the hot water and by the copious secretion the surface epithelium is rendered sodden and then removed by rubbing the hands together under the water and then by using ordinary soap. Lastly, the hands are washed off in a warm solution of carbolic acid (1 to 40). This is the lotion kept in use throughout the operation for the surgeon's hands. For cleansing the skin of the patient he has found the following method very effectual: First, the skin is scrubbed in the usual way with soap and water and with turpentine, alcohol or ether if necessary. Then over a wide area hydrated lanolin oleate of mercury (20 per cent.) is rubbed in. The same ointment is smeared on a piece of gauze and placed on the skin for twelve to twenty-four hours. Then another quantity of the ointment is rubbed in and a second piece of gauze smeared with it and applied. This is not removed until the time of the operation. At least twenty-four hours, preferably forty-eight hours, should be devoted to the preparation of the patient in this way. Ten minutes are required for each "rubbing in" of the ointment. On the operating-table the piece of gauze is removed and any superfluous ointment is rubbed off with a piece of dry sterilized gauze. The skin of the patient is now ready for operation. The originator of this method states that chemical examination of the skin for mercury was negative—probably because the quantity was so very minute in the first place, and, in the second place, too rapidly absorbed to admit of detection. Bacteriologically, the number of germs common in the skin was found to be very much reduced. Those which were present were due, no doubt, to the fact that it is impossible by any means to reach

all the possible places where they abound, namely, hair follicles, sebaceous and sweat-glands, and the various layers of the epithelium. However, the decrease in their number was so great as to support the value of the method. The clinical records gave incontestable proof of its value. On these grounds he commends it for trial. It is, of course, available only in cases where a long preliminary preparation of the patient is possible. For emergency operations it could hardly be used.

Gastro-enterostomy.—The regurgitation of bile into the stomach after a gastro-enterostomy has proved in some cases an insurmountable obstacle, although the most approved methods of operating have been followed. E. TAVEL (Revue de Chir., Dec. 10, 1901) relates a case in which several operations were necessary to overcome it. The patient suffered from hyperchlorhydria of obstinate type. The first operation was done November 22, 1896, by Dr. G. Sick (Hamburg). It was the typical Kocher method of gastro-enterostomy, anterior and antecolic. The union between the stomach and the intestines was on the greater curvature of the stomach near the pylorus. On January 16, 1897, Mikulicz (Breslau) did the second operation in order to relieve the dilatation of the stomach due to the fact that the anastomosis has contracted to the size of a lead pencil. At this operation a gastro-enterostomoplasis and entero-anastomosis were done after the method of Braun-Jaboulay. This operation was unsatisfactory, because the symptoms continued equally severe and obstinate. The third operation was done by Kocher (Berne) in June, 1897. It consisted chiefly in a folding of the afferent loop of the intestine, after the method of Von Hacker, to which was added an elongation of the mesentery of this same afferent loop. This was followed by considerable improvement in the symptoms, but still there was much to be desired. The fourth operation was, therefore, undertaken in August, 1897, by Tavel at Berne. During it the duodenum was separated from the stomach just beyond the pylorus and an attempt was made to restore the abdominal wall. This served to prevent all flow of bile by reversed action of the bowel into the stomach, but still another step was necessary. At the fifth operation September 4, 1897, by the same surgeon, the afferent loop of the intestine was cut away. The condition in the abdomen was then as follows: As the stomach had been closed just beyond the pylorus, its outlet consisted in an anastomosis with the small intestine as just described. The bowel was so arranged as to make its peristalsis pass in the same direction as that of the stomach. Behind this loop of the intestine lay the colon running transversely from side to side. From beneath this structure appeared the stump of the afferent loop created at the fifth operation. Just beneath the colon it joined the loop from the stomach by a lateral anastomosis. In this way it will be seen that the bile could not reach the stomach except by traveling against the peristalsis and against food from the stomach vertically upward for the distance represented by the separation between the stomach and the colon. Tavel claims that the results were most satisfactory.

Gastrostomy.—The necessity for making an opening into the stomach by means of which food may be given when the normal passages are out of function is often urgent to the last degree. A. DEPAGE (Jour. de Chir. et Annales de la Soc. Belge de Chir., Nov. and Dec., 1901) presents the following exceedingly ingenious plan: In the front wall of the stomach, extending almost from curvature to curvature and opposite the junction of the left and middle thirds of the organ, he makes a long horseshoe-shaped flap, with the base upward and the sides parallel and wide enough to permit the flap to be folded and sewn around a rubber tube. Placing this tube in position he folds the flap of the organ about it so that mucous membrane is everywhere in contact with it. This brings the peritoneal surfaces in contact. In a similar way the hole representing the wall of the stomach removed in the flap is closed in the same way. This makes a long, continuous suture line which begins below at the apex of the flap and ends above at the tip of the new inlet to the stomach. This new gullet, as it might be called, is then passed through the abdominal wall and secured there. After union has taken place food may be easily passed into it. It is a most successful and certain method of providing a well-protected and permanent false opening into the stomach.

ANATOMY AND PHYSIOLOGY.

Conversion of Pancreatic Zymogens into Enzymes.—Knowledge concerning the zymogen of the proteolytic ferment of the pancreas has received scarcely any additions since 1875. Although it is known that the rennet ferment of the stomach does not exist as such in the gastric juice, but as a zymogen, no proof seems to have been adduced of the existence of a similar body in the pancreas. H. M. VERNON (Jour. Phys., Dec. 23, 1901) has made a series of observations upon these closely-related ferments in order to determine more exactly the conditions under which the zymogens of trypsin set free their enzymes, the rapidity of such transformation, and the degree of stability possessed by these enzymes when once they are formed. He finds that extracts of a fresh pancreatic gland as a rule show no ferment activity for some days and then more or less suddenly develop nearly their maximum power. When the glands from several different animals are minced together and extracted the ferment activity begins to develop at once. The destructibility of the trypsin, as tested by keeping the diluted extract for one hour at 38° C. with 4-per-cent. NaCl and determining the percentage of ferment destroyed at the end of this time, varies concomitantly with the activity of the extract. If filtered glycerin extracts of zymogen be diluted with water they spontaneously develop tryptic power at a rate increasing with the degree of dilution. The rennet ferment in inactive extracts is set free as well as the tryptic, but it was found that the liberation of the ferment from its zymogen was effected not by the rennet ferment, but by the tryptic. It was found that the amount of ferment liberated by exposure of the minced gland substance to the air for twenty or more hours was as a rule very small, most of the ferment being set free after the addition of the extracting liquid. The addition of small quantities of tryptic digestion products to the inactive extracts was found to have a moderate enzyme liberating effect. When oxygen or CO_2 was bubbled for one to three hours through diluted glycerin extract kept at 38° C., the enzyme was not liberated any more rapidly or slowly than in the unaerated extract. If, however, 1 per cent. of an active extract was added, then in one hour the oxygen increased the enzyme formation from 28 to 43 per cent., while the CO_2 decreased it from 6.4 to 12 per cent.

Movements of the Intestines as Studied by Means of the Roentgen Rays.—The investigations of the intestinal movements have been beset by the same difficulties that characterize the investigation of the gastric mechanism. Pathological subjects or animals subjected to the disturbing action of drugs or serious operations have been the only sources of our knowledge. Under these conditions a considerable difference of opinion as to the nature of the normal movements of the intestine has existed. In order to arrive at a clearer understanding of this subject W. B. CANNON (Amer. Jour. Phys.,

Jan., 1901) has utilized the Roentgen ray. The observations were made upon cats. Subnitrate of bismuth one-tenth to one-third the weight of the food was mixed with what the animals ate. He finds that in this manner the movements of the intestinal contents and thereby the movements of the intestinal walls are visible on the fluorescent screen. The activity most commonly seen in the small intestine is the simultaneous division of the food in a coil into small segments and a rhythmic repetition of the segmentation each time applied to the new segments formed from parts of those just divided. Peristalsis is usually combined with segmentation. The ileocecal valve is thoroughly competent for food entering the colon from the ileum. The usual movement of the transverse and ascending colon and the cecum is an antiperistalsis. This recurs in periods about every fifteen minutes and each period lasts about five minutes. This gives a new significance to the ileocecal valve, for the food now in a closed sac is churned and mixed by the constrictions running toward the cecum and again exposed to the absorbing walls without any interference with the process in the small intestine. As soon as new food enters the large intestine a strong general contraction takes place along the cecum and ascending colon; a moment later antiperistaltic waves begin to pass. With accumulation of food in the transverse colon deep tonic constrictions appear one after another and carry the food into the descending colon. The observations have revealed no evidence of antiperistalsis in the small intestine, but since the ileocecal valve will allow nutrient material under pressure to pass backward the antiperistalsis of the large intestine may force into the small intestine considerable portions of large nutrient enema. Signs of emotion such as fear, distress or rage are accompanied by a total cessation of the movements of both small and large intestine. The movements continue in the cat both during sleep and at night.

Formation of Bile Pigment and Bile Acids.—That these substances are not formed by the liver-cells is demonstrated in a series of experiments by A. C. Croftan (Phil. Med. Jour., Jan. 18, 1902), which also show that such pigments and acids can be formed in various parts of the organism other than the liver, and that they can be formed from hemoglobin outside of the organism by a purely chemical, fermentative process and without the intervention of the liver-cells. To determine the rôle of the latter in the formation of bile pigments and acids, a watery extract of fresh liver-cells (of a calf) was prepared, from which these had been extracted by alcohol. To this was added a solution of hemoglobin and dextrose (1 per cent. in the proportion of one to four. It was found at the end of a week that all the hemoglobin was destroyed; the fluid contained the bile acids and the sediment substances which gave the typical reaction of bile pigments, showing that a conversion of hemoglobin into bile pigment and acids had taken place without any "vital" action on the part of the liver-cells; the process was chemical, and the active agent a substance that was soluble in water and therefore unorganized. As the process resembled a true digestion, the fluid was tested for the presence of a ferment. Fibrin flakes placed in the liver-cell extract, and the mixture alkalinized with a 7-per-cent. soda solution, were partially digested, and albumose, peptone and tyrosin were found. The probability of the active substance being *trypsin* was substantiated by confirmatory tests, solutions of both giving the same reactions. Moreover, when a solution of trypsin was added to a mixture of hemoglobin and dextrose, after a week's time the fluid contained bile acids and the sediment, pigment. It is probable that the trypsin is in part normally absorbed from the intestine, but that the greater part reaches the liver via the pancreatic veins in the portal blood or via the lymphatics in the hepatic artery. If the formation of bile acids and pigments from hemoglobin by the action of trypsin in the presence of dextrose is a purely chemical process and altogether independent of the specific action of any particular group of cells, one must conclude that wherever in the body free hemoglobin is present, together with dextrose and trypsin, this conversion into bile products can occur and not necessarily in the liver alone.

MEDICINE.

Rapidly-fatal Scarlatina.—The most rapidly-fatal case mentioned in Nothnagel's System of Medicine died in twenty-six hours; in Keating's Cyclopedia, in twenty-four hours. Bessey and Goodhart had seen cases die in twenty-four hours. W. S. Morrow (Montreal Med. Jour., Dec., 1901) cites the case of a boy of two years and eleven months who came in from play and felt sick and vomited at five in the afternoon, had a loose, dark-colored stool in the night, played with his brother in bed the next morning, ate a baked apple at noon, and died in convulsions at half past five. No physician was in attendance, but four hours after death reddish patches were visible on abdomen and thighs, the glands at the angle of the jaw were enlarged, and, on prying open the mouth, the tonsils were seen large and red, the redness extending upward on to the palate. The viscera were negative. A scarlatina epidemic was raging at the time, and a brother developed the disease a few days later.

Interventricular Aneurism.—The patient had had syphilis and five years ago had a severe fall from a horse. Three years ago he noticed palpitation and dyspnea, with precordial pain and fainting spells. The precordium was prominent and bulging and there was an apparent area of pulsation, 5 cm. in diameter, in the third left interspace. Over this area was heard a systolic murmur most intense over and above the second costal cartilage. There was a marked thrill. At intervals the patient had attacks of faintness with rapid feeble pulse and failure of eyesight. The autopsy, performed by R. G. Curtin (Proc. of the Path. Soc. of Phila., Nov., 1901) showed a saccular dilatation about the size of a walnut above the origin of the aorta anteriorly; the left auricle and mitral valve were much dilated, and the undefended portion of the interventricular septum was found bulging into the right ventricle, into which it opened through a small orifice, probably the result of ulceration. The aneurism was large enough to hold a good-sized walnut.

Amebic Dysentery.—This is a disease which has so rarely been described in children that the diagnosis is probably never entertained by the practitioner. Yet within a short space of time five cases were identified and successfully treated by S. Amberg (Bull. J. H. Hosp., Dec., 1901) at the Johns Hopkins Hospital. The patients ranged in age from two to five years, and illustrated a moderately severe type of the disease, with the exception of one child who was very seriously sick. The clinical picture in these cases was very indefinite. The appetite and general health were good, fever and acceleration of the pulse were hardly noticeable, and the blood-examination showed only a very moderate anemia of the secondary type. Stools varied from two to six in twenty-four hours, were rarely associated with pain, and presented nothing characteristic to the eye. They were of every degree of consistence and might, or might not, show admixture of blood. The odor was always most offensive. Microscopically, three very typical structures are to be found, namely, live amebæ con-

taining red blood-cells, Charcot-Leyden crystals, and numerous eosinophile cells. The presence of either of the latter elements should make the observer extremely suspicious of amebic dysentery, as they occur in no other condition except helminthiasis, which can easily be excluded. The presence of the ameba is, of course, final. Treatment consists in irrigations twice daily with solutions of quinine, 1 to 5,000; the rest of the treatment is merely adjuvant.

Bruit de Galop.—French doctors distinguish between a "bruit de rappel," in which there is a reduplication of the second sound of the heart, and a "bruit de galop," in which there is a reduplication of the first sound. It is upon the subject of the latter that D'ESPINE (Rev. Méd. de la Suisse Rom., Dec. 20, 1901), who with Potain is the authority on the phenomenon, contributes an interesting résumé. By means of the cardiogram he has established definitely that the first sound of the series is protosystolic in time and not presystolic, as was believed by Potain. He attributes great diagnostic value to the sign, which is always an indication of relative myasthenia on the part of the heart. It occurs most frequently in connection with nephritis, either at the beginning, before compensatory hypertrophy has taken place, or at the end, when insufficiency is already imminent. Very often it is associated with an increase in arteral tension. The mechanism of the sign is simply a double effort on the part of the overstrained ventricle to rid itself of its contents. Coming, as it does, before the actual results of incompensation have made themselves evident, it is of enormous prognostic and therapeutic importance.

Blood of Syphilitics.—Important changes in the blood are said to be found in syphilitics, provided accurate and careful examinations are made. Justus's test has long been of assistance before the secondary rash and depends upon the diminution of the hemoglobin about ten to fifteen per cent. during twenty-four hours succeeding an inunction with mercury. L. H. WARNER (St. Louis Cour. of Med., Dec., 1901) has found that in the first stage the hemoglobin is diminished, but the red cells are about normal in number, as in chlorosis. The leucocytes are increased, but a differential count shows a large increase is lymphocytes. In the secondary stage the hemoglobin is further diminished and the leucocytosis persists. In the third stage there are myelocytes, a marked anemia and frequently eosinophilia. If mercury or iodide of potassium are given in the early stages the young leucocytes (lymphocytes) are decreased and the older forms increased.

Leucocytes in Hepatic Abscess.—In view of the divergent opinions concerning the diagnostic value of the leucocyte-count in abscess of the liver, MOSSE and SARDA (Gaz. hebd. de Méd. et de Chir., Dec. 26, 1901) report their findings in four cases. In three of these cases the leucocyte-count ranged between 19,000 and 26,000. These figures are of no diagnostic value, inasmuch as a hyperleucocytosis of similar grade is found in a variety of hepatic disorders other than abscess. In the fourth case the leucocytes numbered 40,000, but here there was present an ulcerous phlebitis of the inferior vena cava. Differential counts showed an excess of polymorphonuclear leucocytes.

Diagnosis of Syphilis.—It is a mistake to place too much reliance upon the failure to get a history or sign of the initial lesion of syphilis, because the initial lesion may have been too trivial to attract the patient's notice. In women especially, writes J. C. WHITE (Boston Med. and Surg. Jour., Jan. 16, 1902), the primary lesion is often masked. The use of the term "copper color" in describing the syphilitic efflorescence is deplored. In leprosy, tuberculosis and all chronic tissue changes of the skin, if the lesions have existed for a long time and especially on certain sites, they may have a copper-colored or dull reddish hue. So in syphilis also; but as cases occur the copper hue is exceptional, because the practitioner sees more of the earlier manifestations of syphilis than of the later ones. It is of little diagnostic value whether there are lesions on the scalp or not. Alopecia is not a constant or a reliable symptom. It is said that syphilitic children are emaciated, have wrinkled skin, look like little old people, etc. This is true in some cases, but a large proportion of children with syphilis are born plump and healthy and may remain so for some time. The initial lesion may be confounded with *ulcus molle* or with a herpetic eruption. Internal remedies should be withheld while the dagnosis remains in doubt. Herpes is self-limited; it should be protected and let alone, and the diagnosis solves itself. The soft ulcer, if it does not spread and if it is simply kept clean, gets well under local treatment; it does not undergo marked infiltration and demands no internal treatment. If it spreads rapidly, herpes and the primary lesion of syphilis are excluded. A definite diagnosis should be made before cauterizing. Except in rare malignant forms of syphilis, it is almost a criminal offence to give iodide of potassium in the early stages or while the diagnosis is in doubt, because it is wholly unnecessary and leads to serious errors with regard to the disease afterward. Most dermatologists probably cannot distinguish between possible syphilitic manifestations and an iodide eruption. Scabies must be thought of when discrete lesions are noticed on the penis. A rapidly developing syphilitic rash with fever may simulate measles. Varicella and variola may be mistaken for syphilis when diagnosis must be made at sight. Syphilis may show itself on the scalp in the form of seborrheal scales. The most characteristic form of alopecia in syphilis is loss of hair in ragged, angular patches, many and not large. Another form is general thinning out associated with seborrhea. Pigment changes on the sides of the neck occur—dark areas in which white areas are interspersed. Dactylitis is more frequently tuberculous than syphilitic.

The Vagus Reflex.—As long ago as 1870 Waller reported the history of cases of vomiting, of pain in the head and neck, of hysteria and of hemicrania, which were benefited by vagus compression. T. J. MAYS (Boston Med. & Surg. Jour., Jan. 16, 1902) has noticed in cases of phthisis that pressure over the course of the vagus on one side of the neck produces more pain than equal pressure on the opposite side, and that the supersensitiveness corresponds with the side of the chest having the affected lung. This writer believes also that such supersensitiveness is frequently a premonitory symptom of phthisis, and is often associated with other pulmonary and nervous disorders either as a forerunner or an accompanying sign. Cases of persistent paroxysmal cough are described in which this sign was present; these cases resisted the action of morphine, codeine, cocaine, strychnine, etc., but yielded to subcutaneous injections of a 2½-per-cent. solution of silver nitrate, introduced over the sensitive vagus nerve. The cure is believed to be due to the counterirritant action of the silver injections.

Pneumonia.—In the treatment of this condition it is important to remember that the chief element of danger is from the introduction of the pneumococcal toxins into the nutritional fluids of the body. E. F. WELLS (Jour. Amer. Med. Assoc., Jan. 18, 1902) recommends for the capillary paresis in ordinary cases calomel followed by salines, bleeding to the amount of 500 to 700 c.c., induction of free perspiration, free taking

of fluids, digitalis and adrenalin hydrochlorate in efficient doses. The value of the polynuclear leucocytes in combating the effects of the pneumococcus is probably without question, and to stimulate their increase when a satisfactory leucocytosis fails to appear he gives nucleinic acid, which may also, he believes, aid in preventing cardiac and vascular thrombosis. The ingestion of chloride of sodium is important and well salted food and frequent saline enemata are recommended. Early prophylaxis in diet and catharsis will usually prevent the uncontrollable fetid diarrhea which comes on late in some cases. Salol is a good intestinal antiseptic in such cases.

Blood-Examinations in Phthisis.—In order to throw additional light on the condition of the blood in phthisical subjects, L. Applebaum (Berl. klin. Woch., Jan. 6, 1900) divides his patients into groups corresponding to the stages of the disease. He finds that in the first stage of tuberculosis the blood-changes are not typical. In the type of patient in whom tuberculosis is a matter of years of slow development—the tall, pale, thin, rapidly-growing young subject with poorly-developed chest, anemia is present in the first stage of tuberculosis; the erythrocytes are diminished in number, the hemoglobin is reduced, the specific gravity is lessened and coagulation is delayed. In the class of individuals having good color and a liberal panniculus adiposis, the blood is absolutely normal during the first stage of phthisis. In the first group the toxic effect of a long-standing, but as yet not advanced tuberculosis, is apparent. In the second stage of phthisis the blood is apparently normal, estimated by the ordinary means for the determination of its characters. But autopsies show that the organs of patients dying during the second stage of phthisis are very markedly anemic. The fact is that there is a diminution in the blood mass—a loss of the watery element which conceals the true state of affairs by presenting normal findings when the formed elements are counted or the hemoglobin is tested. The main causes of the concentration of the blood in these cases are night-sweats and diarrhea. In the third stage of tuberculosis the anemia is no longer concealed under the mask of oligemia. During this period hemoglobin averages 40 to 45 per cent., erythrocytes 2 to 2½ million, specific gravity 1040 to 1042. The leucocytes are increased and may number 15,000 to 20,000 *sub finem vitæ*. In the hyperleucocytosis of the final stage the polymorphonuclear leucocytes are relatively increased and constitute 85 per cent. of the total number of white blood-cells.

NEUROLOGY AND PSYCHIATRY.

A Method of Treating Genuine Epilepsy.—Four stages or phases are included in the natural evolution of a case of true epilepsy. The first stage, says M. Lion (Berl. klin. Woch., Dec. 30, 1901), consists of the sum of minor anomalies which together form the "epileptic character." These anomalies include pathological irritability, sudden changes in mood, tendency to excesses and passionate outbreaks, unsocial instincts, unreliability in work. The second stage embraces innumerable shades of psychical disturbance, from the slightest momentary overclouding of consciousness to the more lasting and significant subconscious states, during which the patient may commit horrible crimes. The pauses in consciousness known as "petit mal" characterize the third stage; and finally come the typical epileptic convulsions. In the first two stages, Lion treated with rapid and extraordinary success twenty cases of long-standing epilepsy by means of the preparation produced in the laboratory of Professor Poehl and known as Cerebrinum-Poehl. This preparation he employed on theoretical grounds, believing that the disease is of toxic origin and that healthy nerve-elements possess an antitoxic power. Almost from the first day the anomalous psychical phenomena disappeared, to return either not at all or only after a long interval and then considerably modified. Stupid, passionate, aggressive, unsocial patients were transformed into more or less normal individuals. More advanced cases of both "petit mal" and "grand mal" were benefited in a notable degree; attacks became weaker, occurred at longer intervals and gradually tended to cease. In cases of unusual severity "opocerebrinum" was used in conjunction with sodium bromide.

Pupillary Alterations in the Insane.—In a previous article it was shown by De Montyel that scarcely one-fifth of a large number of insane subjects possessed normal pupils. In a third of the cases examined inequality of the pupils was present; in a large proportion disturbances of the light reflex or of accommodation were noted, and in a still larger proportion changes in the form of the pupils. Argyll-Robertson pupils were common; more rare was a loss of accommodation associated with normal reaction to light. Mydriasis was present in a larger number of cases than was myosis. In a new series of cases the same writer (Gaz. hebdom. de Méd. et de Chir., Jan. 5, 1902) has undertaken to study the evolution of pupillary abnormalities in the insane. It is shown that the disturbances are not transitory, but are lasting. The findings are regarded as valuable in the differentiation of insanity from general paralysis.

EYE, EAR, NOSE, AND THROAT.

Use of Gold Ball to Support an Artificial Eye.—In cases in which the eyeball has been previously removed and only a small stump remains, the difficulties of successfully fitting an artificial eye are many. In order to give better support and avoid incrustations behind and over the eye and also to prevent the sinister smile which a sunken eye gives, L. W. Fax (N. Y. Med. Jour., Jan. 18, 1902) devised the method of implanting a glass ball beneath the conjunctiva by a median incision and suture of the conjunctiva over the ball. Failures occurred in about thirty per cent. of cases on account of the breaking down of the suture line. Recently he has perfected the method by making an incision, from eight to fourteen millimeters long, obliquely across either the lower inner quadrant (right eye) or the upper outer quadrant of left eye. The conjunctiva is then separated from the deeper tissues and a gold ball inserted. Two sutures are used to close the wound. A conformer made of metal, the shape of an artificial eye with a hole in the center into which the ball fits, is then placed over the conjunctiva and the eyelids closed. The conformer is removed in twenty-four hours and the stitches on the third day. Thus the tension caused by the implanted ball does not come over the center of the eye and the tendency to expulsion is slight. The conformer temporarily holds the ball in place and the results are almost uniformly successful.

GENITO-URINARY.

Ulceration Into Rectum of Prostatic and Vesicular Neoplasm.—In critically examining the course of three cases, A. Guépin (Le Progrès Médical, Dec. 14, 1901) finds that ulceration into the rectum with the formation of a fistula which will permit the escape of urine is followed by great alleviation of the painful vesicular symptoms. In each case the prognosis, which up to that time had been grave, became more favorable and the patients lived for from three to five years. Strangely enough there was no propagation of the cancer along the rectal mucous membrane.

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DISEASES OF THE PANCREAS.

Diseases of the pancreas can no longer be said to be beyond the domain of hopeful diagnosis and of timely successful surgical intervention. The symposium on diseases of the pancreas at the meeting of the New York State Medical Society last week (see page 282) brought out in excellent relief the present status of our knowledge with regard to the physiology and the pathology of this important organ.

The advances which have been made in the study of pancreatic nosology and function have come from many sources in different countries. It is a matter of no little pride to be able to say that many of the important steps in the practical knowledge of pancreatic disease and its diagnosis, with the possibilities of successful treatment, have come from American workers. Since Senn's original monograph on the surgery of the pancreas in animals and the evident analogy with human beings that attracted world-wide attention, followed by Fitz's clinical observations on acute pancreatitis and by the work at Johns Hopkins in recent years accomplished by such successful investigators as Flexner and Opie, American investigation of pancreatic conditions has always been in the forefront of progress.

Some of the latest American observations are eminently suggestive and promise to be of great practical service. Flexner has confirmed Hlava's observations made at the Czeckish University of Prague with regard to the probable etiological rôle played by acid gastric contents in the production of acute pancreatitis. This disease occurs especially in alcoholic patients whose gastric juice is liable to be overacid. It was considered that the regurgitation of the gastric contents in such patients into the pancreatic gland through its duct might lead to acute inflammation of the pancreatic substance. Such a regurgitation is not impossible under the stress of the antiperistalsis that often accompanies severe vomiting. These conditions are especially liable to be fulfilled in hard drinkers. Flexner further has shown experimentally that the injection of artificial gastric juice into the pancreatic ducts is liable to set up acute pancreatitis.

Certain European observers point out the fact that an overflow of bile into the pancreas may take place under certain pathological conditions and that this is liable to set up acute hemorrhagic pancreatitis. When a biliary calculus lodges in the ampulla of Vater just within the duodenal papilla, through which the bile and pancreatic ducts open in common into the intestine, it is possible for the calculus to close completely the opening into the duodenum and yet not prevent all communication between the biliary and pancreatic ducts. As the bile is secreted under distinctly higher pressure than the pancreatic juice, it naturally finds its way up the pancreatic duct into the gland. From here it is absorbed and sts up irritative conditions. If but small quantities of bile find their way into the pancreas at intervals only a condition of chronic inflammation results. This gives rise to the induration of the head of the pancreas so often found during operations for gall-stones and which has frequently given rise to the suspicion of associated pancreatic malignant disease. If considerable bile finds its way into the pancreas, an acute inflammatory condition is set up which gives rise to the now classical symptoms of acute pancreatitis and which may be complicated by hemorrhage, fat necrosis, or eventually suppuration.

As to the treatment of pancreatic diseases the indications are much more clear than formerly. For acute hemorrhagic pancreatitis nothing can be done by surgical intervention. Expectant treatment must be the rule, though rather the armed expectancy of the surgeon in an appendicitis case than the helpless facing of a forlorn

hope. At the first sign of a purulent complication the surgeon must be ready to intervene. Dr. Park's expression is that the surgeon's position must resemble his attitude in an appendicitis case—"When in doubt, operate." Operation may save life. If pus has developed there is no other hope for the patient than in its prompt evacuation.

An important pathognomonic sign of pancreatic involvement seems to have been recently discovered by Opie at Johns Hopkins. He found in the urine of a patient dead from acute pancreatitis a fat-splitting ferment. This discovery has not been confirmed, because as yet no other cases of the affection have been under observation. Careful investigation of many other specimens of urine from living and dead subjects failed to reveal any trace of a fat-splitting ferment. It is well known that it is this ferment which causes the fat necrosis in acute pancreatic affections and its mode of distribution through the organism is as yet unknown, but it is thought at times to find its way into the urine and so might rather naturally be expected to appear in the urine. This may prove just the touchstone that was needed to differentiate such conditions as perforation of the intestines, intestinal obstruction and the rarer thrombosis of the mesenteric arteries from acute pancreatitis. The possibility of the occurrence of these conditions has always affected the certainty of the diagnosis of pancreatic affections.

On the whole we would seem to be entering on a period in the diagnosis and treatment of diseases of the pancreas that gives promise of adding another extensive province to the wide domain of abdominal surgery. The pancreas is nearly the last abdominal organ to yield to surgical advance, for already in several cases even the suprarenal capsule has been successfully treated surgically. We have every hope that the labors of American investigators will continue to throw more and more light over this important province of medicine and surgery. *Quod faustum vertat!*

CAUSE AND PROPHYLAXIS OF OLD AGE.

Old age is acknowledged to be a relative term. Some men are as old at forty-five or fifty as others are at seventy. We have accepted the expression "a man is as old as his arteries," but this furnishes very little information as to the causes of the senescence of the tissues that forebodes the near termination of existence.

Connective tissue changes in the arteries mean deficient blood-supply to the important viscera, for the arteries are an essential part of the blood-moving apparatus. There are many cases, however, in which the causes of the arterial degeneration are extremely obscure. There are not wanting good authorities in pathology who insist that arterial changes are always secondary to pathological conditions in important viscera, especially the kidneys. Certain families age very early in life and the definite tissue conditions, whose descent by heredity form the basis for the premature senility, are but very little understood.

Needless to say, the question is extremely interesting. There are many theories on the subject, but very little original observation. Dr. Mühlmann of Odessa, as the result of some recent investigations into the condition of the nervous system at various times of life, seems to have added distinctly to our scanty store of exact information with regard to the causes of old age. He has found as a uniform change from early life to old age a constant increase in the number of ganglion cells in the central nervous system which showed signs of fatty degeneration. In early youth very few of the ganglion cells give evidences of degeneration, although there are always some that have suffered visibly from the wear and tear of life. Until the number of degenerated cells nearly equals the healthy cells, life continues in its original vigor. The healthy cells seem able by their influence to compensate for their inactive or less active neighbors. When degeneration has gained the upper hand, that is, when the number of deteriorated cells exceeds that of the healthy ones, systemic decay begins.

This theory, supported as it is by a long series of observations, would seem to furnish rational answers to certain obscure questions. Longevity, for instance, is well known to be an hereditary or family characteristic. The intricate problem of heredity is simplified by the suggestion that the cells on which depend the essential legacy of vitality from generation to generation are not of many different kinds. A family propensity to longevity is dependent entirely on the cells of the central nervous system. This view is confirmed by our constantly widening knowledge of the importance of trophic influences in the maintenance of tissue vitality and even, as Prof. Pavlov has pointed out, in the accomplishment of organic function. There would seem to be in Dr. Mühlmann's work a further confirmation of the idea that the principle of life is in some manner more essentially and directly united to the nervous tissue and that vital impulses are distributed from this to other tissues.

The axiom "It is worry, not work, that kills" receives a new illustration from these conclusions. The importance of the nervous system for all functional derangements becomes very manifest. Physicians have realized from the very beginning of medicine how important mental states are in the therapeutics of disease. The reason for the influence of mind over matter has not always been clear. Now that we begin to realize how much of organic vitality and function is dependent on forces that originate in the central nervous system, the problem of the physical basis of mental influence loses some of its obscurity. Psychic conditions are essentially dependent on nervous tissues. Disturbances in the psychic sphere induce pathological conditions, not only in the cells that are told off for intellectual processes, but almost inevitably affect sympathetically other important groups of cells in the central nervous system with which they are intimately connected.

EARLY DIAGNOSIS OF TUBERCULOSIS.

The air in New York City has been full of discussions of tuberculosis in its various phases during the last few weeks. At least three medical organizations have devoted evenings to the subject. The monthly meeting of the local branch of the New York State Medical Association and the last stated meeting of the Academy of Medicine called for distinct contributions to the subject, some of which we have presented to our readers in the shape of the original papers, while full abstracts of the others, with the discussions they evoked, will be found in our society proceedings.

The practical conclusion of all the discussions is that the most important thing for the patient is very early discovery of his tuberculosis. To assure this, certain newer methods in diagnosis are recommended by specialists, though all are agreed that none of these new methods can be relied on with absolute assurance. The Roentgen rays, for instance, are in some cases of decided help very early in a case; not so much, however, by showing the actual location of an area of beginning consolidation as by demonstrating that there is a limitation of the excursion of the diaphragm. Very early in pulmonary tuberculosis at a time when the lesions can scarcely be said to have invaded the lung tissue proper, and when the inflammatory reaction is only peribronchial, Nature sets the affected lung at rest to a marked degree. By a nervous reflex, not well understood as yet, the half of the diaphragmatic muscle corresponding to the diseased lung is induced to limit its excursions. This phenomenon can be seen very clearly with the aid of the fluoroscope and, if there are any suspicions of the presence of tuberculosis, constitutes almost a pathognomonic confirmation.

It was pointed out by those who are expert in physical diagnosis that the Roentgen rays are not necessary in order to detect diaphragmatic inequality of movement very early in pulmonary tuberculosis. At a time when the ordinary physical signs give no sure basis for the diagnosis of tuberculous invasion and often serve scarcely to arouse suspicion, careful percussion of the base of the lung in full inspiration and full expiration will show not infrequently that the diaphragm fails markedly to descend on one side as compared with the other. Attention was also called to the fact that while inspection in front may show no difference in respiratory movement, inspection posteriorly may demonstrate easily recognizable lagging and limitation of respiratory movement. Finally, the Litten phenomenon, the actual observance of the excursions of the diaphragm, as it can be plainly seen through the thoracic walls of thin persons, and most tuberculous patients are favorable subjects in this regard, makes the recognition of unequal movements of the muscle on the two sides a comparatively easy matter. The Roentgen rays are then at least not indispensable for the very early diagnosis of tuberculosis in this way.

With regard to auscultation, Dr. Loomis called attention to a portion of the lungs important for the diagnosis of incipient tuberculosis that is not examined with sufficient care in routine practice. If the palm of the patient's hand be placed on the opposite shoulder the scapula moves outward and exposes the root of the lung to more facile examination. Here the breath sounds within the bronchi can be studied better than anywhere else. As the initial lesion in pulmonary tuberculosis consists of a thickening of the tissue lying in and around the bronchi the change in the breath sounds caused by this narrowing of their lumen and roughening of their surfaces can be detected very early. The prolongation and roughening of expiration over this area constitute very probably the earliest significant physical sign in pulmonary tuberculosis.

With regard to the use of tuberculin for diagnostic purposes, notwithstanding the favorable testimony of so conservative an authority as Dr. Trudeau, there is practical agreement that its use

is unjustifiable. In well-marked pulmonary tuberculosis it sometimes fails to give any reaction. When there is a history of syphilis the occurrence of a positive reaction has no pathognomonic significance. Dr. Otis of Boston, who has had probably more experience with the agent than any one else in this country, opposes its use. Many physicians have not only been disappointed, but have even seen unexpected acuity of symptoms follow its use. Dr. Janeway is not sure but in one instance of acute generalized tuberculosis brought to his notice the acute symptoms may have resulted from tuberculin injection at the hands of a preceding medical attendant.

There is a striking uniformity of opinion among experts in diagnosis that the physical signs in the lungs must not be depended on absolutely for the ultimate decision as to the presence of incipient tuberculosis. All of them lay great stress on systemic symptoms that confirm or even suggest the diagnosis. Undue rapidity of pulse is considered very significant. A rise in temperature of more than a degree during the day, Potain's symptom of lowered blood-pressure, as shown by a special manometer designed for the purpose, or loss of weight for which no adequate cause can be found, are all considered possible signs of the presence of tubercle that become positively diagnostic if only suspicious symptoms of doubtful significance are found in the lungs.

Practically all the authorities are agreed, too, that it is better to be safe than to be sorry. On even the suspicion of the presence of a tuberculous process, patients should be warned of their danger. Colds that "hang on" in spite of ordinary treatment and that show a certain absence of reactive vitality in the system are to be treated as if they represented an initial stage of tuberculosis. The diet and appetite are to be regulated, an abundance of fresh air and sunlight counseled, and patients should be recommended to limit trying indoor occupations as much as possible or to give up for a time exhausting physical labor. Of course, all this is for the well-to-do rather than the poor, but it represents the ideal of prophylaxis and therapeutics at a very early stage. In a word, the present idea among physicians is not to conceal the existence of tuberculosis from the patient as long as possible, as used to be done, but rather to warn the patient very early in the disease, perhaps even in the pretuberculous stage, and so arouse the reactive vitality of the system before it has been impaired by serious pathological conditions.

ECHOES AND NEWS.

NEW YORK.

Reception to St. Luke's House Physicians.—Dr. Beverley Robinson gave a private smoker last Saturday, February 1st, to the house physicians of St. Luke's Hospital who had served directly as house physicians under him. Dr. Robinson was made the recipient of a silver loving-cup.

City Isolating Consumptives.—Charities Commissioner Folks has ordered that all patients in the city's hospitals suffering from consumption be transferred to the new phthisis hospital on Blackwell's Island and that all such cases in the future be sent there for treatment. About thirty consumptive patients have already been removed from Bellevue. Those remaining will be removed as rapidly as possible. It is expected that the change will greatly lessen the death-rate in the city hospitals. The new hospital will shelter about 120 patients and two other buildings are in process of alteration. These will bring the total accommodation up to 350.

The Office of Coroner.—In New York City a growing disposition has recently arisen to question the further usefulness of this time-honored official. It is with no small show of reason contended that with the present administrative machinery the duties which usually devolve upon his office could be better performed in other municipal departments.

Bovine Tuberculosis.—At the meeting of the New York State Medical Society last week that body received from its Legislative Committee a recommendation that the questions involved in Dr. Koch's paper at the London Tuberculosis Congress upon the communicability of bovine tuberculosis invited further experiments in this field before any conclusions could be drawn that would modify existing methods for dealing with the disease. The recommendation was also made that local boards of health be requested to follow the work of the Milk Committee of the New York County Medical Society in the efforts made to protect that commodity. The Committee's report also favored indorsing the movement for the establishment of a National health board with a representative in the President's Cabinet.

Damages to the Manhattan Eye and Ear Hospital.—No building in the vicinity of the recent explosion which occurred in the construction of the Subway suffered more than the Manhattan Eye and Ear Hospital. Practically all of the glass in the building was shattered, most of the plaster was ruined and much of the woodwork and ornamental coping in its front was dislodged or broken. It is now reported that the building inspectors have declared the institution unsafe for occupation at present. The Managers have displayed remarkable courage and energy in their efforts to repair the damages and restore the hospital as rapidly as possible to its normal condition. No similar charity is of more benefit to the city and every assistance in rehabilitating the institution should be extended to its management.

PHILADELPHIA.

Hospital for Mt. Pocono.—A Women's Auxiliary of the Pocono Protective Health Association has been formed with Mrs. William R. Fisher as president. The objects of the Association are the erection, equipment, and maintenance of a small hospital building for emergency cases in the immediate vicinity, for either residents or summer patients and guests. Treatment will not be free. Work on the building will probably be begun in the spring.

Large Increase in Typhoid Cases.—For the week ending February 1st there were reported 201 cases of

typhoid fever and 21 deaths, an increase of 84 cases over the previous week. Only six wards in the city are free from the disease, the West Philadelphia wards, as last week, showing the larger number of cases. The one explanation for the increase in cases and deaths is given by the Bureau of Health as polluted drinking water; the one safeguard is to boil the water. Circulars insisting on the latter precaution are being distributed.

Camden Charities Imposed Upon.—Managers of the Cooper Hospital and the Camden City Dispensary have lately made an investigation of the circumstances of applicants for free treatment at those institutions. A twenty-day examination showed that of eighty cases applying at the hospital, twenty were in a position to pay for treatment and of ninety-six cases at the dispensary thirty should have been debarred from free assistance. The investigation is the first step toward preventing such imposition.

Dr. Hare's Unpleasant Experience.—Dr. Hobart A. Hare had a few hours' unpleasant experience during the past week as the result of a mistake made by a zealous member of the police force. Dr. Hare, accompanied by an expert, was testing a new automobile and while on South Broad Street was preceded by another party who exceeded the required limit of speed. On his return the doctor was placed under arrest as the offending party, taken to Moyamensing Prison and conducted to a cell after being refused telephonic communication with his family and counsel. Friends soon after secured his release. An investigation now being conducted is likely to result disastrously for the officers responsible for the indignity.

Death of Dr. Charles H. Burnett.—Dr. Charles H. Burnett, the distinguished aurist, died at his residence in Bryn Mawr, January 29th, of pneumonia. Dr. Burnett was sixty years of age, a native of this city, and a graduate of the Medical Department of the University of Pennsylvania, the degrees of A.B. and A.M. having been taken at Yale. He served as a resident at the Episcopal Hospital in Philadelphia and later studied optics and diseases of the ear in Vienna. He was a member of various medical societies in Philadelphia and professor ot otology at the Philadelphia Polyclinic and School for Graduates. Dr. Burnett edited an encyclopedia of diseases of the ear, nose and throat, and last year completed a text-book on diseases of the ear.

Meeting of Antivivisection Society.—The American Antivivisection Society held its nineteenth annual meeting in this city January 30th. The President, Dr. Matthew Woods, was re-elected. The President, in giving an account of vivisectional experiments which he claimed were to be found in nearly every medical periodical, mentioned the connection of hydrophobia with them. He stated that he had been looking for twenty-five years for a true case of hydrophobia and as yet had not found it. Neither had he found a physician who had seen a genuine case. The Society states that it is important that the public mind should be disabused of the popular fallacy that hydrophobia is a common disease.

"Cut-Rate" Druggist is Upheld.—The question whether or not the maker of a proprietary medicine can impose upon a purchaser a contract determining its price and thus prevent "cut-rate" selling, recently came up for argument in Common Pleas Court. The suit was brought against a local druggist by Julius Garst of Worcester, Mass., who sued for $105, a fine of $21 for each offense. The Court holds that it will not recognize a condition on a package of medicine providing for its sale at not less than a stated price. There is no averment that the defendant ever agreed to the terms of the notice. The plaintiff by printing a notice on the box attempts to make a contract with each person accepting a box, whether that person assents to it or not. The opinion is that the notice on the box has no contractual power whatever.

Serious Accident to Physician.—Dr. Raymond J. Harris, a demonstrator in chemistry at Hahnemann College, was possibly fatally injured February 1st as the result of a collision between his carriage and a hook and ladder truck. A fracture of the skull was sustained and, although the last reports are favorable, his chances for recovery are considered slight.

Removal of Superior Cervical Ganglion of the Sympathetic.—At the Jefferson Hospital Clinic, February 1st, the left superior cervical ganglion of the sympathetic nerve was removed from a patient by Dr. W. Joseph Hearn assisted by Dr. J. Chalmers DaCosta. The man is a patient of Dr. George E. De Schweinitz and has been suffering for some time from chronic glaucoma. The right ganglion was removed at the Philadelphia Hospital by the same operators on December 20th. While no distinct improvement in the corresponding eye has been noticed, the process has apparently, been stopped and the eye is getting no worse at least. So far as known these are the first operations of the kind done in this city.

Many Bequests to Charity.—By the will of the late J. Alfred Kay many hospitals are the subjects of substantial bequests. Among these are $5,000 each to the Pennsylvania, Germantown, University, Jefferson, Orthopedic and Polyclinic Hospitals. The codicil also gives $1,000 each to St. Agnes', St. Joseph's, Jewish, Hahnemann, Presbyterian, German, Children's, Howard, Medico-Chirurgical, and Gynecean Hospitals and to a number of homes for the blind, etc.

Philadelphia Neurological Society.—At the monthly meeting, held January 28th, Dr. William G. Spiller exhibited a case of paralysis of the face and upper and lower limbs on the right side and of the tongue and muscles of mastication on the left side. The patient had been in fairly good health until one year ago, although she had had three miscarriages. The attack was preceded by drowsiness and headache. The lesion was supposed to be specific in nature. Dr. Spiller stated that he had noticed paralysis of the muscles of mastication in three cases of hemiplegia. He also exhibited a patient to illustrate tests for differentiating between true hemiplegia and malingering or hysteria. One is the contracture of the anterior tibial muscle when the thigh and leg are flexed, the phenomenon being caused by the contraction of the iliopsoas muscle. Another is the extension of the great toe when the leg is raised, this indicating impairment of the motor tract.

Dr. M. H. Bochroch exhibited a patient showing superior tabes. The history and condition of the case suggested paresis with beginning tabes of the cord.

Dr. Charles S. Potts exhibited a case of progressive muscular atrophy (Aran-Ducheame type) in which the atrophy began in the extensors of the hand and fingers.

Drs. A. P. Francine and D. J. McCarthy exhibited a case of facial tic in which each contraction is followed by complete paralysis in the facial and hypoglossal distribution on the same side. Discussion of the case led to the general conclusion that the lesion was a small cortical one in the facial area.

Dr. F. Savary Pearce reported a case of poliomyelitis with increased knee-jerk.

Dr. A. Buckley, by invitation, read a paper entitled "Carcinoma of the Spine, with Autopsy" and showed microscopical specimens.

Academy of Surgery of Philadelphia.—At the meeting of February 3d, Dr. De Forest Willard showed

a case of intestinal anthrax reported at the last meeting.

Dr. Edward Martin read a paper on Intestinal Suture.

Dr. G. G. Davis read a paper describing the radical cure of hemorrhoids without general anesthesia. The operation is done by the cautery under cocaine anesthesia. The diseased area is exposed by a speculum, preferably the Kelly instrument, and cotton saturated with a four-per-cent. solution of cocaine introduced. The tube is withdrawn, leaving the cotton in place. After a short interval the cautery knife is used, puncturing, burning superficially, or deeply as desired, being careful not to get too high up, thus avoiding hemorrhage. Another plug of cotton is introduced and left in until passed with the first bowel movement. Only one portion of the hemorrhoids is removed at a time, the others following at intervals of at least a week. Dr. W. L. Rodman spoke of a case recently operated upon by him, the man refusing to take anesthetics of any sort and standing the operation very well. Speaking of the danger of general anesthetics in rectal cases he stated that operations on the rectum, genitalia, or matrices of nails require the third degree of anesthesia to abolish sensibility. This made them more dangerous than other more important operations for which only the second degree of anesthesia is needed.

CHICAGO.

X-ray Machine for Cook County Hospital.—To facilitate the work of the Cook County Hospital medical and surgical staffs, Warden Healy has ordered the purchase of an X-ray machine for that institution. The X-ray machine will not cost less than $550.00.

For a Children's Hospital.—A subscription dance will be given February 5th, the proceeds to be used toward building a hospital for sick children in connection with St. Joseph's Orphan Asylum.

Insane of the City.—During the year 1901 the detention hospital received 1,503 patients, who were distributed as follows: Cook County Asylum, Dunning, 667; Illinois Northern Hospital, Elgin, 293; and Illinois Eastern Hospital, 166. The remainder, about one-third, were discharged.

Exclusive Medical College for Women.—Will Chicago have a high-grade medical college solely for the instruction of female students? This question, based on rumors of plans of founding such an institution by the Alumni of Northwestern University, has deeply stirred the medical and college circles of the city. It is thought that Dr. Eliza H. Root, Dean of the Woman's Medical School of the Northwestern University, which has just been sold, is at the head of a movement to organize such a school. Associated with her in the planning of it are reported to be Mrs. E. L. MacEwen, Mrs. John Ridlon (wife of the noted orthopedic surgeon), and Mrs. Martha F. Crowe, all of Evanston. Plans and ideas in connection with the proposed school have been talked over. It is said that the Alumni were unanimously of the opinion that they should keep together and in their unity is seen a powerful factor for the support of the school if it is founded. The question now comes up in connection with the opening of Rush College to women and the permanent coëducative feature of the College of Physicians and Surgeons. Will the Northwestern admit women to its medical school, or will it throw out coëducation altogether and be the great university for men only of the West? These questions are declared by physicians who are watching the checkerboard of educational enterprise to be paramount issues, affecting the status of Western women in regard to opportunities for learning and having a marked influence on the suffrage question itself.

Chicago Health Department.—An effort in preventive medicine on a scale of considerable magnitude was inaugurated last week by the City Health Department. Its field is an area of some 600,000 square miles of territory in the ten States of which Illinois is the southern center and the remotest boundaries of which are within a few hours' railway travel of Chicago. Among the 25 millions of people living in this area the number of cases of smallpox has increased more than 900 per cent. since the first of the year, over the number reported during the corresponding period of 1901. That is to say, between December 28, 1900, and January 24, 1901, there were only 1,070 smallpox cases reported in this territory while during the similar period ending January 24, 1902, there were 10,820 cases reported—an increase of 911 per cent. Authentic information, gathered by wire and mail, from State and local health authorities and from personal investigation by the contagious-disease experts of the Department—sent to a number of infected localities most directly menacing Chicago—convinced the Health Commissioner, Dr. Reynolds, that the disease is still spreading unchecked, that it is not being fought intelligently or adequately, and that its continuance seriously threatens not only the public health, but the material interests of this vast area by the certainty of "shot-gun quarantines" sooner or later and consequent costly and vexatious interference with travel and traffic. These views were presented at a conference with the representatives of the leading railways centering in Chicago and their coöperation with the Department was urged in a concerted effort to "stamp out" the pestilence. Ready assent was given, the necessary men and means were assured and it is confidently believed that the situation will be well in hand within a fortnight after operations are begun. The plan contemplated wholesale vaccination and revaccination in every infected locality; the provision and maintenance of suitable isolation hospitals where necessary; thorough disinfection of smallpox premises and belongings; strict inspection of all persons offering to travel from infected localities and refusal to carry those who do not comply with the requirements. This is the measure relied on to control the objectors, "conscientious" or otherwise, and is one fully within the power of the railways to enforce. Special attention will be paid to the condition of employees in manufacturing establishments—particularly those of textile fabrics—and the railways will set the example by still more rigorously making recent vaccination a condition of further employment. Competent vaccinators and supplies of pure, tested vaccine lymph will be furnished gratis in all proper cases. The work along each railway line will be under the direct charge of the medical director or chief surgeon of the company and a central office will be maintained in the city for the receipt of reports, requisitions, etc., from those engaged in the campaign. Dr. Reynolds has volunteered to take charge of the central office. This action is not taken solely or even chiefly in the interest of Chicago. The situation here has never been alarming at any time during the three years of the epidemic and at the close of last week there were but 21 smallpox cases in the Isolation Hospital—5 having been received and 7 discharged during the week.

There was an increase of 37 in the number of deaths last week over those of the week before—chiefly from the acute intestinal, heart and nervous diseases and from consumption, penumonia and scarlet fever. Influenza is still very prevalent and, although of a mild type in itself, it mischievously and often fatally complicates many other maladies. It is feared that the cur-

rent month will not make as good a record as January, when the total deaths, 2,229, furnished a midwinter death rate of only 14.42 per thousand of population, or nearly four (3.9) per cent. less than the rate of January, 1901.

CANADA.

Deserting Her First Love.—Princess Sophie Bamba Dhuleep Singh, daughter of the Maharajah of Lahore, India, is leaving the Northwestern Women's Medical College, Chicago, where she has been a student in medicine and will throw in her lot with the Women's Medical College, Toronto.

Fever Following Smallpox.—While the unorganized districts of Ontario are becoming cleared of smallpox the pest is securing a firmer hold upon the settled and older districts of the Province. Scarlet fever and diphtheria are raging in the lumber camps to the north where the smallpox has been prevalent. Both diseases seem to be of a very malignant type.

County Health Inspectors.—The attention of the Ontario Legislature is being called to the Medical Health Act with a view to securing amendments thereto which will provide for the appointment of county instead of township medical officers of health. At present each township appoints its own health officer at the nominal salary of $50 to $100 per annum and very often the duties of these officers are perfunctorily performed. Better service could no doubt be secured if county officers were appointed with an adequate salary.

Notices in Hospitals for Pay Patients.—During the past week a Toronto physician has been seeking to recover from the executors of an estate the amount of his bill for services rendered a patient during the lifetime of the latter. The executors refused to pay on the ground that the physician was on the junior staff of the hospital at the time the services were rendered in the hospital. The judge, who was on record before in this matter of charging hospital patients, stated it would be wise and fair for the hospital authorities to post up notices in all such institutions stating the conditions under which patients are charged for doctors' attendance. The suggestion seems to be a good one.

Blackmailing Doctors in Toronto.—Two Toronto physicians have been subjected to what the Crown Attorney states to be nothing more nor less than attempts at blackmail. One doctor was called to attend a citizen's wife and another, a specialist in diseases of children, to look after the health of the child of a family, which had recently arrived here from New York. In both cases the doctors were held up by the husband on account of alleged insults to the virtue of his wife. The former doctor laid a trap and caught his would-be blackmailer; the second gave him the option of walking out of his office or being thrown out. The case is being ventilated in the Police Court.

Hospital Quarantined.—Smallpox of a mild type appears to be spreading in Montreal, and it is quite a common occurrence for people to be walking in to the Health Department afflicted with the disease. Notre Dame Hospital has been quarantined, one of the servants having been attacked by the disease. There are two hundred patients in the hospital at the present time and they will have to stay there until February 12th.

Southwestern Manitoba Medical Association.—This Association was organized only a few months ago and out of the seventy available medical men in that section sixty-seven have already become members and it is expected the others will do so shortly. An effort is to be made to organize the whole profession in the Province of Manitoba. A new tariff for insurance companies and lodge work has been agreed upon and every member of the Association has signed a pledge binding them to this tariff from January 1, 1902. Fraternal societies with insurance will be charged $3.00 per examination; insurance companies, $5.00. A provisional tariff of fees has also been arranged to which all will adhere as closely as possible. The members of the Association have also decided to render statements of accounts at least quarterly. The Association discourages lodge practice.

Samaritan Hospital, Montreal.—There are fourteen patients in this hospital at the present time, of whom eight are being treated free. Dr. Leslie Allan of Point St. Charles has been promoted to be chief anesthetist in place of Dr. Leprohon, resigned, and Dr. F. W. Harvey has been appointed assistant anesthetist to succeed Dr. Allan.

Penitentiary Hospitals.—The Inspector of Canadian penitentiaries has handed in his report to the Minister of Justice for the past year. On June 3d last the population of these institutions throughout Canada numbered 382 as compared with 1,424 on the same date in the previous year. There were twenty-three deaths during the year. Referring to the St. Vincent de Paul Penitentiary, the Inspector reports that during the year one hundred and fifty pounds of tincture of opium and about ten thousands morphine pellets passed through the dispensary. This fact gives reasonable ground for the opinion that the administration of this department of the prison is characterized by imprudence and extravagance. The health of the convicts in this institution has not been considered at all satisfactory, and it is thought to be traceable to the overdrugging with opiates.

GENERAL.

Smallpox in London.—A recrudescense of London's smallpox epidemic was apparent last week when 71 cases were reported in one day.

Academic Honors.—Professor Kossel, who holds the chair of physiology at Heidelberg, has been elected a member of the Stockholm Academy of Sciences.

Medical School for Indo-China.—The government of Indo-China has decided to establish a medical school at Hanoi. The direction of the school will be entrusted to Dr. Yersin, who will have two assistants.

Bacteria on Money.—Dr. Vincent, through bacteriological investigations made at the "Hôpital du Bey at Algiers, has found that almost all varieties of bacteria occur upon currency, but most common are the germs of suppuration. Bacteria are, however, comparatively short-lived upon metal currency, the metal having a certain antiseptic effect; the action of gold is less marked in this respect than other metals. The bacillus typhosus will live for from five to seven days upon a gold piece, but dies in less than eighteen hours upon other metals.

First Sicilian Medical Congress.—This Congress will be held at Palermo in April, 1902.

French Scientist's Discovery.—At a meeting of the National Society of Physicians at Lyons, Dr. Lepine announced that he had isolated from the urine of pneumonic patients a crystallizable substance, the study of which he believes will give the key to the pathogenesis of diabetes. This substance *in vitro* prevents glycolysis in the blood, so that, if it is not eliminated or destroyed the blood becomes surcharged with glucose. The theory advanced is that although in pneumonic patients this substance is eliminated, normally it is destroyed by the pancreas; hence the pancreas does not elaborate a glycolytic substance, but in its normal state destroys an antiglycolytic substance which is always present in the blood.

Consolidation of Medical Journals.—An event significant of the tendencies of the time has just occurred in Cleveland. Plans for the amalgamation of

the "Cleveland Journal of Medicine" and the "Cleveland Medical Gazette" have been brought to a successful issue. On January 20, 1902, was held the organization meeting of the "Cleveland Medical Journal" Company, which is composed of those physicians now interested in the two old journals, together with a good proportion of the representative physicians of Cleveland, numbering in all 45 stockholders. At a considerable sacrifice on all hands the two old journals have been transferred in their entirety to the new company that will publish the "Cleveland Medical Journal," which is to be an independent and free professional institution conducted for the good of the medical community with no idea upon the part of the stockholders that they shall ever look for dividends. At this meeting a temporary organization was formed, consisting of Dr. Marcus Rosenwasser, President; Dr. William E. Bruner, Secretary; Dr. Joseph F. Hobson, Treasurer. Dr. P. Maxwell Foshay was elected editor and Dr. Edward S. Lauder associate editor.

Hydrological, Climatological and Geological Congress.—This Congress will be held at Grenoble, France, in October, 1902. Among the subjects to be discussed are: Action of Mineral Waters on the Tissues; Hydro-Mineral Treatment of Phthisis, of Diseases of the Stomach and of the Skin; Bacteriological and Chemical Examination of Mineral Waters; Influence of Heat, Cold, and Altitude upon Respiration; Necessary Meteorological Conditions in the Establishment of Sanatoria; Open and Closed Sanatoria.

Another Million for Harvard Medical School.—Last June J. Pierpont Morgan agreed to erect, at a cost of more than $1,000,000, three of the buildings required for the accommodation of the Harvard Medical School. President Eliot recently announced to the Medical Faculty that John D. Rockefeller proposed to give $1,000,000 in furtherance of the same project, provided other friends of the University would raise a sum of money in the neighborhood of $500,000, to be used by the medical school for land, buildings, or endowment. It was stated that this condition would doubtless be speedily complied with. Since the announcement that Mr. Morgan was to erect three of the buildings the plans of the architects have called for two additional laboratory buildings, and a considerable fund is also needed to provide for the increased running expenses of the school. It is therefore especially gratifying that Mr. Rockefeller's gift makes it possible to complete the plan which will give this country a great medical university, equal and in many respects superior to any at present existing in the world. It was largely through Dr. W. B. Coley of New York that the gift was made. He laid before Mr. Rockefeller the urgent needs of the university, and it was he who notified the Medical Faculty and President Eliot of the gift.

Dr. Trudeau in Florida.—Dr. E. L. Trudeau of Saranac Lake, N. Y., is now at Palm Beach, Fla., where he will remain for several weeks to enjoy the climatic contrasts to the Adirondacks.

Syracuse Hospital.—At the opening exercises of the new Hospital of the Good Shepherd in Syracuse on February 5th, it was announced that through the goodness of Mr. W. B. Cogswell the Hospital would receive one hundred thousand dollars in cash. It had also been arranged by Mr. Cogswell that the interest on another hundred thousand dollars borrowed would be paid. This money will be expended in enlarging the hospital.

The League of Human Life.—The lay press of Paris, France, led by the "Matin," has undertaken an apparently much-needed reform in sanitary matters. First, the water supply said to have been derived from the polluted Seine was attacked; later the adulteration and manufacture of drugged wine was investigated, and now the pure-milk question is to receive attention. The "Matin" announces its intention of forming a league, to be called the League of Human Life, the object of which will be to analyze the milk brought to it by its members and to prosecute in the name of the league any and every milk dealer thus discovered to be dealing in impure milk. Already it has secured the support of many of its readers, and it will not be long before the league will be ready for business, when for the first time in its history, perhaps, certainly for many generations, the French capital will be on the way to a supply of milk as it comes from the cow. Now that a start has been made, it is expected that the newspapers of other cities will enter into the new field of usefulness opened to them.

The New Lunacy Bill for New York.—On Wednesday the bill that proposes among its other retrograde provisions to wrest the management of the State Hospitals for the Insane from the authority of the present local boards passed the State Senate by a vote of 31 to 18. On the same date but previous to the legislative action, President George F. Canfield of the State Charities Aid Association sent the following telegram to Gov. Odell:

"In behalf of the State Charities Aid Association and Committee of Twenty, representing charitable organizations of city and State, I respectfully request that hearing be granted before you affix your signature to Lunacy Bill, should it reach you, with one week's notice of date of said hearing."

Since this bill has received the continuous support of the Governor, it is scarcely probable that he will long refrain from making it a law.

OBITUARY.

John T. Metcalfe, M.D.

On the 30th of January, 1902, Dr. John T. Metcalfe, for many years a medical practitioner of great eminence in the city of New York, departed this life in the eighty-fourth year of his age in the city of Thomasville, Ga.

He was born in Natchez, Miss., was the eldest child of Dr. Metcalfe, who in early life was a practitioner of medicine and in later years a planter, living upon the plantation known as Montrose, lying upon the banks of the Mississippi not far from the city of Natchez.

Arrived at the appropriate age, the subject of this sketch entered the Military Academy at West Point, graduated with distinction, and served as lieutenant of ordnance during the war with the Seminole Indians, who, having retreated to the Everglades of Florida, made a determined resistance to the authority of the United States. Exposure to the malarial influences of Southern Florida affected his health very badly, and influenced either by this fact or by a distaste for the life, he resigned from the army and commenced the study of medicine, for which he had had, even from his boyhood, a decided fancy.

Graduating from the University of Pennsylvania, that grand old school which so many eminent physicians throughout the United States have proudly hailed as Alma Mater, he went to Europe and studied in the schools of France, Germany, England, and more especially of Scotland. Returning to this country, he came to New York and married Augusta, a daughter of Christopher Collis of that city and began the practice of medicine.

Nothing could have exceeded the kindness and cordiality of his reception by the physicians of the city of his choice. He was received with open arms by its

representative practitioners, such as F. U. Johnston, Alonzo Clark, Parker, Delafield, Markoe, his old army chum, William H. VanBuren, and many others, whose kind interest soon put him in possession of a promising practice.

On his side he was possessed of so many personal advantages which increased the inherent value of those put at his disposal by his friends that there was no wonder that a brilliant, rapid, and most gratifying success declared itself in his favor. His personal appearance was most attractive, his manner most engaging and captivating, his conversational powers quite remarkable, and his education, both general and professional, of the highest type within the reach of the men of that time. He spoke French so fluently that it was always the language of his household; he was quite familiar with German and to a more limited extent was acquainted with Italian. Add to these advantages in social life the fact that his kindness of heart and thoroughness of medical education united in making an able and attractive physician, and one is prepared to accept the result, one of the largest and wealthiest practices, after a very short period of waiting, that New York has ever known.

He soon became professor of the institutes and practice of medicine in the University Medical College, physician to Bellevue Hospital and consulting physician to institutions too numerous to mention.

Men of experience always suspect such sudden and brilliant successes as having within them the elements which insure early decay. But Metcalfe's career belied such ill-omened suspicions and such gloomy prophecies. His sudden and rapid success was sustained by true merit, strict honesty of purpose, and the possession of traits of character which endeared him to all who knew him. "Never," it has been declared over and over again by those who were honored with his intimacy, "have we ever met with any one who possessed such hosts of frends and so small a number of enemies."

John T. Metcalf, M.D.

But there were two sad influences which gradually worked against him and in time cut short his wonderfully brilliant career. Within a few years he lost a wife upon whom he leaned for counsel, for happiness and for comfort. Then the hand of death removed, one after the other, six out of seven children; some of them in early life, some after marriage. Later in life he married Susan, the daughter of William Whitlock of New York, but after comparatively few years of married life she too was taken from him. None but those familiar with the tender, gentle, affectionate heart of the man could appreciate the nature and degree of his suffering. Had not God in His mercy left him a de-

voted son, who, relinquishing his career in the United States Army, has spent his life in ministering to him, no one could have predicted the result.

Then his health entirely failed him; he became a terrible sufferer from the worst form of gout; and in about his sixtieth year he was forced to give up a profession of which he was so brilliant an ornament, upon which he shed such luster, and in which he was able to do so much of good, both for patients and for brother practitioners.

The theme is so fascinating a one to him who writes these lines that he is obliged to force himself to come to a conclusion, although dissatisfied with the brevity and insufficiency of this short and imperfect sketch.

" Lo! through a storm of blinding tears I see
The rainbow vision of his noble life:
True heart! brave soul! Ye are not dead to me,
But live to hold God's beacon in the strife!"

—T. G. T.

BYWAYS OF MEDICAL LITERATURE.

Prophylaxis of the Sequelæ of "Wild Oats."

Family physicians are often approached by fond mothers with the idea that they may be able to provide suggestions by which the sons of wealthy families may be kept from the health-destructive influences liable to follow a crop of wild oats too injudiciously sown. The suggestion of an editorial writer in the *New York Independent* for December 26, 1901, may prove helpful to physicians in this matter. He recommends "dissipation by machinery." He says that M. Santos-Dumont showed originality by racing an airship around the Eiffel Tower instead of racing horses in the Bois de Boulogne. This is a new form of dissipation which, on account of its comparative innocuousness and possible benefits, may be commended to the attention of gilded youth everywhere. Balloon racing over the sea and land is likely to become fashionable among young men who have the spirit of adventure and the money to back it. The era of aero-automobolism can not be developed unless somebody puts a good deal more energy and money into it than is going to pay. And as for danger, well, science must have its martyrs and a community can spare the idle sons of rich men as well as any other class.

"The example of the Duke of the Abruzzi in sowing his wild oats in 86 degrees 33 minutes north latitude, instead of in Vienna or Paris, is well worth the attention of royal families. How much better it would have been for Edward VII. if he had spent his lengthy adolescence in the Arctic regions instead of at house parties in Merrie England. There is so little for princes to do nowadays that it would be well to keep them in cold storage, safe from anarchists and actresses, until they are needed."

These suggestions will surely be of prophylactic importance for the sons of our millionaire kings of finance, commercial potentates, coal barons, etc. No higher object in life than the development of applied science could well be imagined. The taste for this sort of thing is expensive, but not more so than a taste for exploiting the virgin forests of the vaudeville stage, and it is physically much less dangerous. Besides, there is an air of distinction about scientific experiment, due to the fact that but few have entered the field, that should prove a powerful source of encouragement.

Curious Transformation of Medical Terms.

There are some very interesting reflections on the changes in signification that medical terms have undergone during the course of centuries, in a recent philological work called "Words and Their Ways in English Speech." The word treacle, for instance, which was formerly a medical term, but now means only a syrup, is a typical example of word transformation. Treacle is derived from the Greek, theriakon, which means pertaining to a wild beast. From this it came to mean a remedy for the bite of a wild beast, then its signification broadened to that of antidote for anything harmful. Finally, its signification developed to that of a remedy of any kind; as most of the old remedies were syrups, the modified theriakon, that is, treacle, came to mean simply a syrup. In the sense of remedy treacle occurs in a well-known passage of Chaucer, who speaks of the Lord as the "treacle of every harm," that is, a sovereign remedy for every grief. A writer in the *New York Saturday Times Review* calls attention to the fact that the authors of the book might have well referred here to the famous Treacle Bible, which obtained its name from its rendering of a well-known passage as follows: "Is there no treacle in Gilead?" The modern word balm, also, by the way, a medical term, has come to replace treacle in this passage, though its philology does not give it a much better right to the place. It is only a modification of the word balsam, originally the pitchy product or inspissated sap of trees or plants.

The Pathology of Gambling.

A recent work by a very well-known Italian authoress is really a clinical study of the pathological side of the gambler's life. The book "The Land of Cockayne," by Matilda Serao, is a study of local conditions in Naples, the birthplace of the talented authoress. All the essential unhealthiness of the mental state of the gambler's mind is brought out. People of every condition of life, from the lowest to the highest, are represented as the victims of the passion. It is evident that any true reasonableness is not present in the great majority of those whose life tragedy it brings about. We have come to acknowledge that the man who thinks he has attained perpetual motion is not sane. Some time there will be just as general an acknowledgment that the man who thinks he has found a way to beat the game, a new and ingenious system by which he is sure to win from professional gamblers, is not in his right mind. The delusion that it is possible to best the gamblers at their own game or that somehow luck is bound to come sooner or later, is one of the most common in our modern life. It replaces many of the superstitions that we condemn so heartily in former generations. Not all of these superstitions are extinct, however, and one of the merits of Matilda Serao's book is that she shows how the gambler's mind is attuned also to the reception of any form of superstition that may with even far-fetched plausibility seem to promise luck.

Undoubtedly a time will come when it will be realized that a man under the influence of an uncontrollable passion for gambling is as much a sufferer from mental disequilibration as a sufferer from any other form of irrational emotivity. The medical profession are agreed that the habitual inebriate needs to be put under control for his own benefit. Our law-making is trending in this direction in many States. The gambling habit will come to be recognized as the result of an imperative impulse of the same nature for which not calm reasoning but positive control is required. The realistic treatment of such a theme is a distinct popular medical document, for it hastens the foundation of a healthy public opinion in the matter.

The Nobel Foundations and Awards.

The recent award of the Nobel prizes for the first time arouses curiosity in the man and his work. There

is an informing article on him in the *Westminster Review* for December. Nearly every one knows the paradox of his career. He spent his life in making high-grade explosives and incidentally accumulated a fortune of $10,000,000. At his death he willed the income of this ten millions of dollars to be given mainly for prizes that are to promote the interests of peace. One of the prizes is to be given every five years to the man or the Society that has done most to promote universal peace among the nations. The other prizes are given, as is known, for the greatest recent discoveries in medicine, in physics and in chemistry and for the most significant work in literature.

Nobel's was a dominant personality. As the result of his life work, the writer of the article in the *Westminster Review* says, the Swedes as a nation have come to take a special interest in the manufacture of explosives. "Just as a German student devotes his chief attention to bacteriology, or an English chemist to mineralogy, so will a Swede make the science of explosives his primary study."

The writer insists that the clauses in Nobel's will are no real irony upon his actions during his life-time. Like a surgeon of daring he sought to excise the cancer of war by using the most dangerous instruments, since none other could be effectual. The arrangements made for the distribution of the prizes seemed to be the best possible to secure absolute impartiality. In this Nobel's business instincts and habits are especially observable. The awards of the prizes for the first time have given universal satisfaction, with the possible exception of that to Professor Behring for the greatest recent discovery in medicine. There are many who think that Professor Behring's position in securing a patent on his invention in order to reap the benefit of it for himself should preclude him from award for humanitarian advances made. Perhaps, in the light of certain recent accidents with diphtheria serum, Professor Behring's own plea in this matter will be listened to with more attention than formerly. He has always insisted that his only object in securing the patent on diphtheria serum was to prevent the putting on the market of inferior and perhaps harmful products out of which the conscienceless would make large amounts of money, while the development of the great idea underlying antitoxin would be delayed perhaps for many years.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

MEDICINAL SEDATIVES IN DISEASES OF THE NERVOUS SYSTEM—LEGAL PUNISHMENTS AND PSYCHIATRY—UNUSUAL FORMS OF PARALYSIS—ANGINA, RHEUMATISM AND ERYTHEMA NODOSUM—MEDICAL AND SURGICAL CONDITIONS IN PEKIN.

KREUSER (Schussenried), at the thirty-second annual congress of the Southwestern German Neurologists and Psychiatrists, read a paper on the value of medicinal sedatives in the treatment of diseases of the mind. After a short review of the recent developmental process in the treatment of diseases of the mind, with a special view to the causes of the disease within the nervous system itself, he endeavored to draw an analogy and to show, from the results of physiological experiments as to the signs and time of exhaustion, at what period medical aid should be given in order to be of value. Of the ordinarily employed means to this end, in addition to ordinary attention to the fundamental principles of psychiatry, the best and foremost means of treatment are rest in bed and the better methods of hydrotherapy. In addition to this, however, there are other means which are available and among them certain drugs may be used, although some of them are possessed of distinct danger. With these limitations in view the most serviceable drugs are alcohol, the preparations of bromine, of opium, chloral hydrate, amylene hydrate (dormiol), paraldehyde, hedonal, sulphonal, trional and hyoscine (scopolamine). Each of these drugs has its own indications, contraindications and dangers which as a rule are learned only after familiarity through use.

FRANK (Minsterlingen in Switzerland) read a communication on the relations between the ordinary court sentences and the mental condition of criminals. The meager knowledge of judges and lawmakers in the field of diseases of the mind and nervous system is really a menace, in his opinion, to the interests of mankind. To put the question otherwise, for example, the Court has little reference to the mental condition of the offender in passing sentence; the mental and nervous health of the prisoner demands some attention. Relief may come from the side of psychiatrists who may by degrees correct this ignorance in the minds of the jurists. In the first place some of the methods of cross-examination followed in courts demand criticism. The dictum which is usually followed in Germany that, before sentence is passed on a certain class of criminals, examination must be made of their mental capacity, is unfortunately not followed in all commonwealths. Frank claims that the court doctors are not as a rule capable of deciding these questions properly. The examination of such patients as a rule demands methods which are natural gifts or personal acquisitions. Through proper examination it may even be established what the motive of the crime probably was. Moreover, it may be established, with due care and attention, how the criminal came to break laws, what was his mental attitude in the matter and under what external influences he labored. After sentence the criminal simply works out his time and is silent. There is no trace of an effort to treat each individual as such. After his sentence is ended no one is interested in his well-being; he departs and begins life anew. The legal formalities are again gone through with perhaps thirty or forty times or oftener in the name of the sovereign and law and also according to precedent. A fundamental psychiatric knowledge on the part of the jurists would be a new field of labor which might be called criminal sociology or criminal biology. Such would probably be interesting and fruitful. Without this knowledge the State is not in a position to protect in the fullest sense of the word the life, health and property of each person. Frank, therefore, demands a practical course in psychiatry for lawyers and lawmakers. Moreover, at the time of examination due attention must be paid to the number and quality of the psychiatrists.

ALZHEIMER (Frankfort-on-the-Main) said that Lissaur has distinguished a typical and an atypical form of paralysis in one of his works recently edited. What he calls his typical form of paralysis embraces perhaps 80 per cent. of all paralyzed individuals. It is clinically distinguished by slowly, steadily progressive, distinct weakening of the muscles. The process of degeneration is generally limited to the frontal lobes of the cerebrum. What Lissaur has called atypical paralysis leaves the degeneration of the frontal portions of the cerebrum comparatively absent, but, on the other hand, shows a more or less localized wasting of the hinder parts of the cerebrum. Clinically the atypical paralysis has an interrupted course. Frequently there are seizures which point to disease in the cortex of the brain. Dementia appears in fixed degree as a late development.

It is partial, combined through other defects and more like the dementia of general disease of the brain. Examination with the microscope leaves no doubt that the change in the tissue of the brain of a paralytic is more or less syphilitic in character. Sometimes with one stroke of paralysis large areas of nervous tissue may be suddenly thrown out of use and then death is apt to follow soon. In the typical paralysis both hemispheres of the brain are as a rule equally diseased. In the atypical form, however, the atrophy is of high degree on only one side of the brain. For this reason there is commonly a wide difference between the condition of the two hemispheres of the cerebrum in the dementia of old age. There is sometimes a typical paralysis of Lissaur, while the dementia itself may be unusual in character. Under this heading belong the senile aphasias. Inasmuch as there is not only one, but many atypical forms of paralysis, it is better not to consider Lissaur's form as atypical paralysis in general, but as a special kind which may be named after him. A third form might be called foudroyant. Clinically it is distinguished by an acute active delirium with extraordinary seizures and excitement and sometimes convulsions which may appear as spontaneous, but which probably are choreic. In these subjects the whole brain shows widespread acute changes. A fourth form is confined chiefly to the cerebellum. According to later researches (Naecke) the cerebellum is regularly affected in one kind of paralysis in a low or high degree, usually atrophic in character. Therefore, the first symptoms in this disease are ataxia and vertigo pointing to the cerebellum. There are also very rare forms which are referable to the optic tracts. Just what share the tracts take and what part of the tracts is affected in this paralysis further study will probably reveal. There are other unusual forms of paralysis which are probably referable to tabes. Perhaps it may be that in its course a tabes may bring about some definite localized paralyzing degeneration. As yet, however, nothing definite has been effected in this connection. However, there are occasional peculiar hallucinations and illusions in tabes which would point toward the localization of the paralyzing degeneration in the deeper elements of the brain in contradistinction to the superficial elements which are usually affected in the typical paralysis. Finally, there are the paralyses of old age, occurring after the sixtieth year, which according to histological examination are not so very rare, but yet for the most part belong to the unusual forms. Clinically they show a senile dementia. The bodily accompaniments are of comparative insignificance.

Menzer, at the Gesellschaft der Charité-Aerzte in Berlin, November 28, 1901, read a paper on the relation between angina, rheumatism of the joints and erythema nodosum. The author has found diplococci and short streptococci in tonsils removed from cases of angina with rheumatism of the joints and at the same time he has discovered the same germs in the tissue about the tonsils also. He therefore regards these points as the entrance for these germs into the blood-current. In nodes cut out of the skin during erythema he found staphylococci. He also points out that in many cases of pneumonia the disease in the lungs is probably caused by infection not through the air-passages, but through the blood-current, probably from the large number of germs in the pharynx. In scarlet fever and measles he says the cause is usually the germs which are so common in angina and bronchitis and that these diseases are only a peculiar reaction to a very common form of infection.

Perthes, at the Medical Society of Leipzig, November 25, 1901, read a paper on his observations in Pekin while on duty there with the German troops. The arrangement of the average Chinese house is very suitable for the climate in having far projecting roofs to protect from the sun and a closed wall toward the north, made for the most part of paper, to keep out the sand storms. They have on the whole a good drainage system to take care of the water which falls in the rainy season and at other times. Most of these Chinese houses could be converted into hospitals with little difficulty. It was necessary to exercise great care with regard to water against the dangers of infection with typhoid fever and dysentery. The Chinese stoves, which gave out large quantities of carbonic acid gas, were another difficulty. By boiling the water, for which these stoves were very useful, these dangers were avoided. Sterilizing for operations was also quite easy. As to the actual medical and surgical conditions seen, the author gave the following: He operated on three cases of abscess of the liver, one after dysentery, one after typhoid fever and one tropical in origin. Only one of these died. He found the Chinese skilful and sensible in their aid to the surgeons and in their care of the sick. Such had been trained in the London Mission Polyclinic. The Chinese as a rule submit willingly to operation by foreign doctors. He also reported a number of cases, with photographs obtained with the epidiascope; one was a case of high-grade coloboma of all four extremities; another a fibroma molluscum affecting the left hand chiefly, with an abnormal development of the bone caused by the Chinese method of whipping; a case of stenosis of the urethra in a eunuch; gunshot fractures of the humerus, of the ulna and of the tibia, gunshot wounds of the ulnar nerve, and of the external iliac artery with secondary gangrene of the foot. Finally, he showed X-ray pictures of the feet of the Chinese women which show distinctly the changes in the outer form of the bones with a transformation of the whole bony anatomy of the foot.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-Sixth Annual Meeting, Held at Albany, January 28, 29 and 30, 1902.

Second Day—January 29th.

[Concluded from page 231.]

New Symptom of Short Umbilical Cord.—Dr. Samuel M. Brickner of New York detailed two cases of labor in which there was dystocia because of the presence of a very short cord in one case and of a cord of normal length in the other but wrapped twice around the child's neck. In the first case the patient complained of considerable pain and discomfort and immediately on the cessation of the pain it was noticed that the head was promptly retracted. The promptness of the retraction made it almost certain that there was a short cord in the case. Moreover, as the result of the head being drawn up from its position in the pelvis between pains there was intermittent urination that began each time just after the pain ceased. It is evident that this urination which is not voluntary is due to the fact that, the pressure on the urethra being relieved suddenly, there is a tendency for the bladder to evacuate itself as the result of the pressure of the head farther up in the genital tract on the bladder and soft tissues near it. Between pains it was also noticed that small amounts of blood were passed. When the baby was born it was found that the cord was barely ten inches and a half in length. Toward the end of the second stage of labor, when the pains were more frequent, there was no tendency to involuntary urination.

The reason for this seemed to be that there was no time for urine to collect between the pains.

In Dr. Brickner's second case the cord was shortened by being coiled around the neck of the child. It was twenty-two inches in length, but the coiling shortened it so much as to make it barely long enough to permit the birth of the child. The coils of cord were wound so tightly around the neck that when the head was born it was found impossible to release them and the cord had to be clamped with two artery forceps and cut between them. In this second case the intermittent bleeding was especially noticeable and was due to the fact that the placenta was slightly separated because of the pull upon it by the shortened cord. The definition of a short cord is not easy to give, because it is a relative matter. The length of cord necessary to allow easy birth varies in different women and with different placental insertions. The symptoms of the condition are the sharp recession of the head on the cessation of the pain, which usually attracts the obstetrician's attention at once. Other symptoms are pain at the placental site and a desire of the patient to sit up because she feels the need of the help of gravity for the birth of the child.

Treatment.—Very little can be done to remedy the condition without endangering the life of the child. If the cord is very short it is liable to be pulled out either at its umbilical or placental insertion. Instrumental interference in labor is apt to precipitate catastrophe. Expectant treatment is advised by all the authorities and seems to be justifiable under the circumstances.

Symposium on Diseases of the Pancreas.

Physiology of the Pancreas.—Professor R. H. Chittenden of Yale University, New Haven, said that knowledge of the physiology of the pancreas practically developed entirely during the last century. All practical knowledge has come since Claude Bernard's time. Wirsung discovered the duct of the pancreas, but did not realize the significance of the gland for digestion. Before this time the parotid and submaxillary glands, as well as the pancreas, were considered to be ductless glands. Von Graf and Sylvius studied the pancreas more closely and realized its digestive function. Peyer, after whom Peyer's patches are named, thought that the glands which he described as occurring lower down in the intestine were meant to supply by their secretion the substances furnished by the pancreas higher up. Brunner, whose name is associated with a set of glands of the intestines, studied the pancreas with assiduity. He removed all of the organ that he could reach from animals and noted the result. He confessed that portions of the gland were so deep that he was not sure of having removed all of it and rather concluded that a portion of it was left. Dogs thus experimented upon by him lived. He concluded therefore that the pancreas was not so important as had been suggested. It is extremely surprising to realize that two centuries went by before Brunner's experiments were repeated. Instead of devoting itself to observation and experiment, the medical world in the meantime occupied itself with elaborating theories Brunner noticed that dogs from which he removed the pancreas suffered from polyuria. It is probable that this was accompanied also by glycosuria, though of course Brunner was not in a position to recognize this fact. It was not until Minkowsky and Von Mering extirpated the pancreas completely in animals and obtained glycosuria that the second important function of the pancreas, namely, its internal secretion, was recognized.

Pancreatic Investigations.—Very little progress was made in the knowledge of digestion for a long while after Brunner's day. Spalanzani, at the end of the eighteenth century, and Beaumont, in America, at the beginning of the nineteenth century, accomplished more than any others. It was not until 1850, however, when Claude Bernard began his investigations, that the function of the pancreas in digestion was fully realized. Bernard showed that the presence of acid material in the duodenum gave rise to a flow of pancreatic fluid. Later it was shown that the presence of alkalies in the duodenum did not produce the same effect. Pavlow showed in recent years that the pancreatic secretion is dependent on the circulation and on nervous influences. The pancreatic fluid is strongly alkaline. It contains a starch-splitting enzyme, a fat-digesting ferment and a proteolytic ferment. Notwithstanding these important functions of the pancreatic juice, the most important feature of the gland is not its value as a digestive organ, but its importance as a provider of an internal secretion. It is this property that Von Mering and Minkowsky discovered. When the pancreas is completely removed from dogs, diabetes sets in in from four to six hours. This does not stop when the animals are fed only on proteids. The animal organism is evidently able to change proteid material into glucose which is promptly excreted in the urine. The glycosuria does not stop even when the animal is fasting.

Experimental Diabetes.—The state induced in these animals is true diabetes. Some time after the operation acetone, oxybutyric acid and other acids characteristic of diabetes develop in the blood. These continue to be present in the circulation until the death of the animal. Death usually takes place in one week and the animal rarely lives beyond four weeks. The most characteristic lesion found after death is fatty degeneration of the liver. Forty per cent. of the liver tissue is found to consist of fat material.

The diabetes does not occur in animals from which the pancreas is removed if a small portion of the gland is allowed to remain. Not more than one-fifth of the pancreas need be left to save the animal from diabetes. If paraffin be injected into the duct of Wirsung, diabetes does not ensue. The presence of the paraffin may cause an atrophy of the pancreas, yet sufficient of the pancreatic tissue is left to provide the internal secretion that prevents the nutritional disturbance that causes glycosuria. It has been found that if a small portion of the pancreas be grafted in some other part of the animal tissue before the gland is removed entirely, complete extirpation of the gland within the abdomen may take place without the production of diabetes.

Special Cells of Internal Function.—Some time ago Langerhans of Berlin described certain portions of the pancreas in which the cells are very different from the rest of the cells of the gland and which have no connection with the ducts of the organ. These cells are arranged in groups that are spoken of now as the islands of Langerhans. They resemble the structure of ductless glands. They are arranged with special reference, as Opie of Johns Hopkins has shown recently, to the blood-vessels of the glands. They are very closely in relation with a rich vascular supply that recalls the glomeruli in the kidney. It is evident that these cells supply the internal secretion of the gland. When diabetes occurs as a result of the removal or of a serious lesion of the pancreas, there is an excess of sugar in the blood. This is not true in the diabetes produced by the drug phloridzin. Nor is it true in the diabetes that results from puncture of the floor of the fourth ventricle. It is evident that the removal of the pancreas does not destroy the glycolitic function. The injection of the blood of an animal suffering from diabetes into another animal does not produce diabetes.

The feeding of diabetics with pancreatic gland substance does not check the diabetes. In this the condition differs very seriously from that which results after thyroidectomy, if thyroid feeding be kept up.

Pancreatitis.—Professor Flexner has recently found that pancreatitis may be produced by the injection into the ducts of the pancreas of artificial gastric juice. It has often been stated that acute pancreatitis may be due to the regurgitation of acid substances from the duodenum into the gland. In Flexner's cases, glycosuria occurred as the result of the inflammatory process set up. It would seem that these observations and the results of these experiments can be of important practical service to the clinician in understanding the relation of pancreatic disease to metabolism and of the pathology of the pancreas to the digestive tract.

Lower Blood-Pressure and Diabetes.—Dr. Chittenden said that the injection of proteids into the circulation is not infrequently acompanied by glycosuria. The most prominent effect of the injection of proteids is the production of lower blood-pressure. It would seem that this is somehow at the basis of the set of changes that lead to diabetes. A very interesting observation has been made recently in Germany and confirmed in this country by which it is found that injections of suprarenal extract cause glycosuria. The main influence of the suprarenal secretion is upon blood-pressure. It seems not improbable therefore that the glycosuric effect is exerted through the blood-pressure changes that ensue.

Diagnosis of Pancreatic Disease.—Dr. W. S. Thayer of Johns Hopkins University, Baltimore, said that the diagnosis of pancreatic disease is not encouraging. Pancreatic affections are discovered as a rule only when advanced and when already fatal changes have taken place. The pancreas is one of the most important of the digestive organs and yet serious changes may take place in it without producing any characteristic results. The organ is so deep and so covered by the stomach and bowels that it is practically out of reach of abdominal palpation. It cannot be palpated in the abdomen of ordinary individuals. In very thin people it can be felt when separation of the recti muscles exists. The pus of pancreatic disease very soon passes from the organ itself into the omentum surrounding it and causes an abscess of the omental bursa. This gives rise to a distinct tumor. It is felt as a deep immobile mass, not influenced by respiration. Its position in the abdominal cavity can be absolutely determined by inflating the stomach and large intestine with gas, when, of course, the tumor will be seen to be behind these organs. About one-half of all the cases of diabetes that come to autopsy have distinct changes in the pancreas. Opie of John Hopkins has recently shown that certain parts of the pancreas, the islands of Langerhans, are always in a state of hyalin degeneration when the patient has suffered from diabetes. So far in not a single case has diabetes existed without changes in this part of the pancreas. Nor has there been a pathological lesion of these structures without diabetes.

The Stools in Pancreatic Diagnosis.—As the pancreas is an extremely important digestive gland, it might be thought that advanced disease of this organ might be readily recognized by changes in the stools. As a matter of fact, however, considerable change may take place in the pancreas without its being noticeable in the stools. There are a number of other digestive functions that compensate for the pancreas. Certain ingredients in the stools are suspicious, however. The presence of more fat or of more soap than usual and of less fatty acids indicates that the fat-splitting ferment of the pancreas is absent from the digestive tract. The presence of too many undigested muscle fibers is also a suspicious sign. The trypsin of the pancreas is one of the most important meat-digesting ferments.

Acute Hemorrhagic Pancreatitis.—For the diagnosis of this condition there is little to be aded to Fitz's classical monograph on the subject. The affection usually occurs in adult or middle life in rather stout people and usually in patients with a history of alcoholism. The diagnosis of the condition should, however, be something more than a good guess. The most important symptom is acute pain in the median line in the epigastric region, usually with a tendency to extend somewhat toward the left. Considerable pain is felt when pressure is made over the lower ribs on the left side. The pain is caused by the pressure of the fingers being communicated to the pancreas through the spleen. This pain is frequently of an intense character that resists morphine, and chloroform may be necessary to give the patient comfort. The pulse is fast, the temperature not high. There is apt to be striking cyanosis with intense prostration and collapse. The patient usually dies in from three to four days. The conditions that come up for differential diagnosis are especially biliary colic, intestinal obstruction and perforation of the intestines. The pain very much resembles that of biliary colic, but is as a rule much more intense. In biliary colic, the pain is referred more to the right side of the epigastrium and has more of a tendency to be referred upward. Intestinal obstruction is simulated by pancreatic pain, but in the latter condition there is stercoraceous vomiting; no peristaltic movements are visible through the abdominal wall, no inflated coils of intestines are to be seen, and the localization of the pain is apt to be higher up. The differential diagnosis of perforation of the intestines is not easy except that there is much less collapse and the condition less rapidly reaches its acme. Mesenteric infarction gives a set of symptoms that resemble not a little acute pancreatitis. However, the symptoms, as a rule, are less violent.

New Urinary Symptom.—In a recent case of pancreatitis at Johns Hopkins Hospital, Opie found a fat-splitting ferment in the urine obtained from the dead body at autopsy. So far there has been no opportunity to confirm this observation in other cases and scarcely enough urine was obtained to make assurance absolute. No fat-splitting ferment has been found in the urine of other subjects examined for the purpose, however, and it seemed not improbable that this may give a new and valuable diagnostic sign for the recognition of acute pancreatic conditions.

Chronic Interstitial Pancreatitis.—The indurative inflammation of this form of pancreatic disease is thought to be due to an ascending affection from the intestinal tract. Vomiting is supposed to be the occasion for the regurgitation of some of the contents of the duodenum through the papilla and the duct to the pancreas. In this case the inflammatory process spares the cells of the islands of Langerhans, which are not directly in connection with the duct system of the pancreas. Diabetes does not always occur in these cases, and the reason is probably this sparing of the Langerhans areas. A certain association between cirrhosis of the liver and diabetes has been noted in a considerable number of cases. When it occurs it is the physician's duty to suspect the presence of interstitial pancreatitis. Chronic inflammatory condition of the pancreas is due to the same causes as the hepatic cirrhosis. The presence of a stone blocking the duct of the pancreas may cause a chronic inflammatory condition that finally leads to atrophy of the gland. This does not at any period, however, give rise to acute pain and it is probably impossible to recognize the presence of stone *intra vitam*.

Pancreatic Cysts.—Large cysts can be recognized by palpation. They may occur as the result of injuries. Some of them may be very large. One reported cyst filled the greater part of the abdomen. Retention cysts of the pancreas are usually small and as a rule cannot be recognized on palpation. Secondary carcinomata of the pancreas are not readily recognizable. Large tumors are not the rule, and it is only their induration that sometimes makes it possible to feel them through the abdominal walls.

Surgery of Pancreas.—Dr. Roswell Park of Buffalo described the methods and technic of operations upon the pancreas. He said that recent experience has shown that it is perfectly possible to reach the pancreas for surgical intervention without seriously endangering the patient's life, and that it is possible to remove portions of the gland and to open cysts without submitting the patient to unjustifiable risk. The advance in the surgery of the pancreas represents some of the best work that has been done in surgical science during the last decade. Notwithstanding the way in which the pancreas is bound down by firm tissue supports, the organ sometimes becomes loose and may be quite movable. Prolapse occurs and sometimes makes the organ quite easy of palpation from the abdominal wall. Functional disorders of digestion result from prolapse of the pancreas, partly because of the interference with pancreatic function and also because of mechanical interference with other organs and because of the influence of nervous reflexes upon important intra-abdominal functions. Dr. Park said that malignant tumors of the pancreas are practically without hope. Excision of the splenic end of the pancreas is not only justifiable, but perfectly possible. The splenic artery runs along the upper border of the pancreas and may be wounded during operations upon the gland. This artery was tied once by Mikulicz without serious result, and both the splenic artery and vein have been tied without necrosis resulting. The removal of portions of the pancreas is perfectly feasible. In six out of nine cases in which this was attempted the result was success. The old practice of opening the cyst of the pancreas and fastening the cyst-wall to the edges of the abdominal wound may still be followed with hopes of good results. The secretion may continue for a long time, but eventually the condition will improve. In a recent experience a copious secretion of pancreatic fluid for months issued from a cyst and Dr. Park almost despaired that his patient would ever be dry again. After a time however complete and very satisfactory recovery took place.

Acute Pancreatitis.—This affection presents differing clinical features according to associated complications. Fat necrosis or suppuration, or hemorrhage may occur; each of these conditions gives special indications. The symptoms frequently point to some severe condition of the abdominal organs that may be intestinal perforation, or acute intestinal obstruction, or pancreatitis. An exploratory incision must be made to render the diagnosis absolute. Wherever pus-formation has taken place the indication, of course, is for its evacuation. The abscess should be thoroughly opened and the lesser cavity of the peritoneum packed with gauze. Any delay in the evacuation of purulent collections in the pancreas is almost sure to lead to a fatal issue. The outlook in these cases, however, is not very encouraging, even under the most favorable circumstances.

Hemorrhagic Pancreatitis.—There is some mysterious connection between the pancreas and tendencies to hemorrhage. Anders collected forty-six cases of hemorrhagic pancreatitis. The more acute the symptoms of any form of pancreatitis the greater the danger. If pus formation does not follow hemorrhage, there is not very serious danger. Pus, of course, must be removed and posterior drainage instituted. Necrotic portions of the pancreas must be removed as far as possible and drainage instituted in order to help the tissues in the disposal of necrotic material. It is perfectly possible to drain the pancreatic space from behind. Even the subphrenic space can be drained through an incision between the tenth and eleventh ribs in the axillary line, as has been shown by a recent experience of Lund. In a late case of Mayo fat necrosis took place, although the patient was thought to be suffering from gangrenous cholecystitis and the drainage was provided on the right side. The surgeon should intervene as early as possible when pancreatic symptoms are present. Dr. Park has established as a rule of action in these cases for himself the same rule he follows with regard to appendicitis and fracture of the skull, namely, *when in doubt operate early.* When delay is possible there will usually be no need of operation at all. When symptoms are at all serious, however, delay is almost sure to be regretted and the surgeon has lost an opportunity to save life.

Pancreatic Pathology.—Dr. George Blumer of Albany said that the most important discovery in pancreatic pathology made in recent years was that by Opie of the connection between the lesions of the islands of Langerhans and diabetes. These islands of pancreatic cells have in connection with them a vascular arrangement which resembles somewhat that of the glomerulus of the kidney. So long as these portions of pancreatic tissue remain unchanged diabetes does not occur. If only one-fourth or one-fifth of the pancreatic glands remain no diabetes occurs in experiments upon animals. This is not due to any effect upon the nervous system in this part of the body, because the warding-off of diabetes may be secured also by the transplantation of the glands. It is evident that some internal secretion of the pancreas prevents diabetes. One serious objection to a theory connecting the pancreas with diabetes has been the fact that fatal diabetes sometimes runs its course apparently without changes in the pancreas. It is possible, however, that serious changes in the islands of Langerhans might be missed, for they occupy only a small portion of the gland. Some years ago Hansemann of Berlin showed that, even in cases in which the pancreas was seemingly completely destroyed by tumor formation, some typical pancreatic tissue remained. These portions might well supply the internal secretion necessary to prevent diabetes. In cases in which pancreatic tumors practically completely replace the gland itself, Hansemann suggested that the tumor cells, though not in themselves true pancreatic cells, are the descendants of pancreatic cells and might well furnish a similar internal secretion. This explanation seemed far-fetched to some pathologists. It is well known, however, that metastatic liver tumors are frequently found to contain biliary secretion and salts of biliverdin have been demonstrated to exist in them.

Acute Pancreatitis.—This may be produced by a number of micro-organisms and experimentally has been set up by injections of diphtheria bacilli, the bacilli coli communis and the bacillus pyocyaneous. It is not impossible that these micro-organisms find their way into the pancreas from the intestine. There are various forms of antiperistaltic movements in the intestine that may favor this regurgitation into the pancreatic duct. Hlava, the pathologist at the Czechish University, at Prague, showed that by injecting artificial gastric juice into the pancreatic duct, in imitation of what he considered might occur dur-

ing vomiting, pancreatitis was set up. Blumer himself has seen a case in which a stone lodged in the ampulla of Vater, the common opening of the biliary and pancreatic ducts into the intestine, prevented the outflow of fluid and yet did not completely close up the connection between the biliary and pancreatic passages. In this case the pancreatic duct was found bile-stained, showing that, as might be expected, bile had flowed over into the pancreas. Bile is secreted under greater pressure than is the pancreatic fluid, so that this is the natural consequence of such a condition.

Biliary Etiology of Pancreatitis.—It is easy to understand how hemorrhagic pancreatitis might occur as a consequence of the irritating presence of bile in the pancreas. In the majority of cases of acute pancreatitis there is a history of gall-stones. In a number of cases a stone has been found in the common ampulla of the duct. Hlava's experiments have been confirmed by Flexner's observations.

Hemorrhage or Inflammation.—A question which always arises in these cases of hemorrhagic pancreatitis, Was the hemorrhage the first symptom or did inflammation precede the hemorrhage? Flexner's observations seem to show that the hemorrhage and inflammatory condition are simultaneous. The presence of blood alone would not give rise to inflammation. This has been shown experimentally on animals by the injection of sterilized blood. Inflammation alone would not give rise to hemorrhage, without some additional cause. The chronic induration which occurs comparatively frequently in the pancreas is due to the presence of small amounts of bile repeatedly finding their way into the pancreatic duct. In operations for biliary colic it is not an unusual thing for the operator to find that the head of the pancreas is quite hard. This has led sometimes even to the suspicion of malignant disease of the pancreas. It is only a condition, however, of chronic indurative pancreatitis.

Pancreatitic Fat Necrosis.—The fat necrosis that occurs so frequently in connection with pancreatitis is due to the steapsin finding its way over the tissues. This has been confirmed by Flexner and by Opie. The mechanism of distribution of this fat-splitting ferment is hard to understand. How it finds its way to distant tissues is the next question that must be cleared up in order to make the process of fat necrosis clear.

Surgery of Acute Pancreatitis.—Dr. Joseph C. Bloodgood of Johns Hopkins, Baltimore, said that acute pancreatitis presents two distinct features. The first is to be seen only during the early hours, or perhaps during the first day or two of the disease. The second is the suppurative condition that results from the acute inflammatory process or from the peripancreatic abscess which forms as a result of the virulent infection. Before suppuration sets in, surgery can accomplish nothing and interference is contraindicated. As soon, however, as suppuration takes place, the pus should be evacuated. All hope of success in these cases depends on the early recognition and the early incision of the abscess.

Expectant Treatment.—There are about eleven cases in recent literature in which recovery from acute hemorrhagic pancreatitis took place without any operation. In two of these cases not long after recovery from the disease, death took place from an entirely different cause and the distinct signs of a healed hemorrhagic pancreatitis were found at the autopsy. One patient was aspirated by Brentano, who withdrew bloody serum, thus apparently proving the diagnosis correct. One of the cases was reported by Jacobs and occurred in a child who had just recovered from an attack of mumps. This is a doubtful case. In one very singular case most of the pancreas sloughed away and was passed through the bowel.

Deaths from Pancreatitis.—While there are a certain number of recoveries from pancreatitis there are a number of reported fatalities. Twenty-one patients died without operation. Three of these reached their fatal termination within twelve hours. One of the patients survived as long as the seventh day. As a rule operation in these cases only serves to confirm the diagnosis and is of no benefit to the patient. Nineteen cases operated upon died. Many of them died on the operating-table. Practically all of the patients died from collapse, most of them within forty-eight hours. For non-purulent pancreatitis the expectant treatment is better than operative interference.

Purulent Pancreatitis.—As soon as pus forms it must be removed. In some thirty cases of purulent pancreatitis operated upon there are nine reported recoveries. Eleven patients treated expectantly died without a single exception. As a rule in the operative cases operation had been delayed too long. If done at any early stage surgery will save lives.

Gall-stones in Pancreatitis.—The diagnosis of pancreatitis must always remain a little doubtful. There are certain features, however, that encourage operation early in the case and without waiting for absolutely definite symptoms. If the symptoms of acute pancreatitis develop in a patient who has suffered from gall-stone an exploratory incision should be made early, for the diagnosis of pancreatitis is almost surely correct.

Traumatisms of Pregnancy.—Dr. Denslow Lewis of Chicago said that as the result of a very interesting case in his own practice, nearly fifteen years ago, he had collected from literature a series of cases of the injuries that had been inflicted upon women during the course of pregnancy. His own case occurred in the wife of a physician. Her husband was endeavoring to perform an abortion on her at the third month of her pregnancy, using a male silver catheter to rupture the membrane and loosen the fetal attachments to the uterus, when the silver catheter disappeared. Dr. Lewis was consulted some twenty-two hours after the event, and made an abdominal incision, but had great difficulty in locating the catheter. Practically all of the woman's intestines had to be removed from her abdomen before the catheter was found, up under the liver. It was removed and the abdominal incision closed. The pregnancy continued despite the surgical interference, and at the end of six months a healthy child was born and is still alive. In another case there was a history of the patient endeavoring to bring on abortion by the introduction of a glass rod into the uterus. It disappeared, but no abortion took place. About three weeks after abortion occurred, but the glass rod not having appeared the girl became alarmed. The rod was found near the left kidney and was removed without difficulty and without serious consequences. Dr. Lewis has found a laminaria tent in the peritoneal cavity that had found its way there as the result of attempts at dilatation of the uterus. Such foreign bodies may remain in the uterus for a long time without producing serious inconvenience. Dr. Lewis once removed a wooden stick five inches long and almost as thick as a lead pencil that had remained in the uterus for nearly two years after an abortion. A bougie six inches in length and the size of an ordinary male sound, that had been used for purposes of abortion, appeared through a fistula over the sacrum. It had ulcerated its way out through the thick tissues of this neighborhood without producing anything more than local symptoms. Hairpins and knitting needles are sometimes introduced to great depth through the abdominal wall with the idea of

bringing on abortion. In one case a young woman introduced a knitting-needle through her umbilicus for a distance of over five inches. She finally pushed it completely into the abdominal cavity. Pus came from the navel, but the knitting-needle made its exit through the vagina. In one case where a knitting-needle was used for the purpose of abortion, it failed to produce the desired emptying of the uterus but left a permanent pigmented spot on the child's buttocks. Dr. Lewis considers that any practitioner when called to see a case of abortion should suspect the possibility of its having been procured by some instrumental means and should looke for the foreign body. This method of dealing with these cases may prove life-saving. If the membranes are ruptured in an abortion, it is better to remove all the fetal products at once. The use of the curette under these circumstances, however, is dangerous. Every physician of any considerable experience has had opportunity to observe that the curette may easily pierce the uterine walls and enter the abdominal cavity.

Removal of Foreign Bodies.—As a rule a vaginal incision should be made if it is possible to remove the foreign body in this way. It by no means necessarily follows that such operative interference may produce abortion. It is wonderful how much disturbance the pregnant uterus will stand without emptying itself. A number of pregnant women have fallen down stairs and yet recovered completely without premature delivery. In one case a pregnant woman was caught between a wall and a heavily-loaded wagon. Her pelvis was crushed so that the internal diameter of the pelvis was less than two inches, but she recovered completely and carried her child to term. The outlook in these cases is not nearly so hopeless as might be anticipated.

Abdominal Wounds.—Insane women have on a number of occasions performed a Cæsarian operation on themselves, cutting open their abdomens and wombs and removing a living child. Many of these women have recovered without serious consequences. Dr. Harris of Philadelphia collected a series of cases absolutely authentic and well substantiated in which women had been eventrated during pregnancy and their wombs opened by the horns of cattle. The results of these injuries showed that the artificial removal of the child in this way gave less fatality than a Cæsarean operation in hospital practice before the days of antisepsis.

Tendon Transplantation.—Dr. Arthur W. Elting of Albany read a paper on the use of tendon transplantation in the treatment of paralytic deformities. He reviewed the history of this form of surgical interference in paralytic cases and showed how much benefit has been derived from it. Formerly paralytic deformities were considered absolutely hopeless as regards any possible benefits to be derived from surgery. The deformity was nervous in origin and was therefore considered beyond the domain of surgical interference. Now the condition of such patients can be so much improved that from being helplessly bedridden they become well able to help themselves and are even able to engage in reasonably laborious occupations. Dr. Elting spoke of the various methods that had been employed and commended especially the idea of splitting the tendon of healthy muscles in order to divide part of its insertion with paralyzed muscles. Some surgeons now attach the tendon of the muscle to be transplanted directly to the periosteum of the bone that is to be affected, thus securing with absolute certainty the movement to be expected. Dr. Goldthwaite of Boston introduced the method of quilting the tendons into one another in order to secure firm adherence. Dr. Elting has recently applied a modification of this method in four cases. In two of his patients both feet were affected by the paralysis. In the other two only one limb was affected. These patients have been transformed from helpless cripples into active members of the family and two of them consider themselves practically well.

Pronunciation of Hallucis.—Dr. R. H. M. Dawbarn of New York said that Dr. Felting was the only surgeon whom he had heard use the term who knew how to pronounce properly the word "hallucis." It is usually caled hal-lu-cis, the second syllable being made long. This word has a peculiar history. There is often mention of the word hallux in such expressions as hallux valgus. As a matter of fact, there is no such word in Latin as hallux. There is such a word as hallex and its definition is pollex pedis, that is the thumb of the foot. Since one is using scientific terms, supposedly of Latin origin, it is only proper Dr. Dawbarn thinks to use them with due regard to their true signification.

Pneumogalactocele of the Breast.—Dr. J. Milton Mabbot of New York described a case in which the patient suffered from a tumor of the breast that developed after an abscess. It was thought that milk alone would be found in it, because there were no general inflammatory symptoms. Percussion over the tumor, rather to the surprise of the surgeons, gave a tympanitic note that showed the presence of gas. Dr. Mabbot prefers the term pneumogalactocele mastitis aerogenes for these cases, because there is no inflammation present, and milk, not pus, is found. The etiology of the tumor was somewhat in doubt. The fluid removed was found to contain large, somewhat broken-down cells resembling colustrum corpuscles and evidently of milky origin. From the fluid a micro-organism was isolated that belongs to some hitherto unidentified class. This micro-organism grows in long thin filaments arranged in long chains. Some time before the development of the tumor normal salt solution had been injected under the breast because of loss of blood during labor. It was thought that perhaps air might have found its way into the substance of the breast during this process.

Micro-Organism and Gas.—It is possible that the gas collected in the case may have been due to the presence of this micro-organism, which was actively motile and grew well on most of the ordinary culture media. The fluid was not examined for anaerobic micro-organisms and the possibility must almost remain that it was a microbe belonging to this class that caused the gas formation. The gas in the tumor was collected over water in a test-tube and was sent to the laboratory to be examined, but proved not to be sufficient in amount to enable its character to be recognized with absolute certainty. A curious observation as the result of the existence of air and liquid together in the cavity of the tumor was the occurrence of distinct succussion sounds, splashes and bubbles, at a distance of several feet from the patient when the tumor was shaken.

Simple Home Modification of Milk.—Dr. Rowland G. Freeman of New York said that the important feature of the artificial feeding of children is the imitation of mother's milk and the preparation of food bearing some definite relation to the needs of the growing organism. Such food need not be prepared with absolute, but with approximate correctness. Dr. Freeman suggests a method by which milk modification can be carried on at home without undue complexity of directions. Gravity cream on an average contains four parts of fat to one of proteids. If mixed with an equal quantity of milk the proportion is about two to one. As a rule the difficult part of the problem of preparing infant food is to obtain the proper proportion of proteids and fat. If these are once obtained sugar may be added. As gravity cream contains about four parts of fat to one of proteids, this can well form the basis of all milk modi-

fications. Simple dilution with milk will give the varying proportions of fat and proteid and the addition of sugar obtained for the purposes in proper weighed amounts is easily effected. As a rule the number of feedings in the day should be decided on and then the quantity of food necessary for the day prepared at once according to the method selected.

Third Day—January 30th.

Double Dacryo-Adenitis.—Dr. D. H. Wiesner of New York reported a case of double infection of the lacrimal glands—an extremely rare affection. The ailment causes no little discomfort. Hot applications are usually advised, but Dr. Wiesner found that ice-applications relieved the patient more rapidly and satisfactorily than the commonly recommended hot applications.

Treatment of Pneumonia.—Dr. Reynold W. Wilcox of New York read a paper on the treatment of pneumonia by the method suggested some time ago by French clinicians. The feature of this method of treatment consists in the effort to overcome the toxemia, which is usually the most serious element in a case of pneumonia. The toxic symptoms are best combated by means of large and increasing doses of creosote. The remedy must be pushed to tolerance. An important part of the intoxication in pneumonia that weakens the patient and renders the prognosis more unfavorable comes from the absorption of poisonous products from the intestinal canal. An important accessory feature of the treatment then is the administration of intestinal antiseptics and the maintenance of the intestinal canal as far as it may be possible in a state of asepticity.

Mortality from Pneumonia.—In addition to the existence of complications or organic lesions in important structures at the time the pneumonia developed, the most important etiological factor and mortality from pneumonia is undoubtedly the toxemia. The results obtained with direct antitoxic treatment have been most encouraging. Creosote especially has proved its value and there seems no doubt that the mortality in private practice under the use of this method of treatment should come down to three or four per cent. in the very near future.

Obesity of Adolescence.—Dr. Heinrich Stern of New York read a paper on those cases of obesity which develop during the third decade of life and signs of which are already present during the second half of the second decade. It is not infrequent to find that people put on weight about the close of their second decade of life. This is as a rule distinctly pathological and not physiological. It needs prompt treatment, and to allow it to continue is to prepare for serious discomfort before middle life and even a shortening of life. In children there is a distinct tendency to put on flesh, but this does not usually make itself very noticeable until between the ages of ten and twelve. As a rule, shortly before puberty, individuals become stouter than before. It is as if Nature were accumulating force to meet the drain that is about to come. The fat put on at this period corresponds somewhat to the obesity that occurs after castration or the menopause.

Adolescent Obesity.—There is a transitory obesity of adolescence just before the acme of physical development is reached. In this form the accumulation of fat tissue is apt to be more on the chest, on the breasts and on the extremities, than in ordinary obesity in which fat accumulates on the abdomen. This form of obesity is not always associated with the consumption of large amounts of food, but there may even be a certain amount of anorexia or a capricious appetite. Dr. Stern is inclined to place the etiology of this form of obesity and its accompanying symptoms in some disturbance of the thyroid or parathyroid glands.

Thyroid in Obesity.—Just about puberty the thymus gland disappears and a marked increase of the thyroid gland occurs. Girls have a more marked increase of the thyroid gland than boys. They also have a more distinct tendency to put on flesh. It would seem that the female organism needs more thyroid substance for proper metabolism than does the male organism. Any functional disturbance of the thyroid gland is noted more in women and leads to obese conditions. It is well known that thyroid medication has a distinct tendency to lessen obesity, especially in young people. This would seem to show that some absence of thyroid function is at the bottom of the tendency to obesity.

Accompanying Symptoms.—At times the tendency to obesity is accompanied by cardiac dyspnea and chlorosis. These occur only in extreme cases. For such patients Dr. Stern has found the following formula of great service:

℞ Ac. Arsenious .....gr. $^1/_{60}$
Adonid .....gr. $^1/_{12}$
Thyroid gland.....gr. ij
Sig.: One powder two or three times a day.

Broken Necks.—Dr. Reginald H. Sayre of New York said that in popular medicine a broken neck is usually considered to be inevitably fatal. Most of the cases actually die, but some of them can be saved. Dr. Sayre exhibited a series of photographs of patients who had suffered from broken neck and described the characteristics of different forms of the injury and the treatment proper for each class of cases. Many of the cases survive only to perish later from bed sores or bladder infection, sometimes due to instrumentation with dirty catheters. Such accidents must, of course, be sedulously guarded against.

Diagnosis of Cervical Fracture.—The diagnosis of fracture of the cervical vertebræ can be made from the position of the head and actual palpation of the position of the bones. In fracture of any of the three upper vertebræ, the head is twisted as in torticollis and is somewhat raised. Dr. Sayre contrasted the position with that of a case of inflammation of the second cervical vertebra in which the face is always held lower. The X-rays are of importance in the diagnosis of these conditions, but it is often extremely difficult to obtain satisfactory radiographs.

Treatment.—These cases need supporting treatment much longer than has been thought. Correction should be made slowly and gradually. Immediate correction may prove fatal. Dr. Sayre has devised a plaster-of-Paris helmet, which is put on at first in connection with a plaster-of-Paris jacket and then the helmet is cut loose from the jacket after some days and the head gradually straightened. It is impossible to keep fractures of the cervical vertebræ properly immobilized with sand-bags and other temporary apparatus; therefore some form of permanent apparatus must be employed. The prognosis of the cases is not nearly so bad as has been thought and several men with broken necks are exhibiting themselves in the museums throughout the country.

NEW YORK ACADEMY OF MEDICINE.

Section on Orthopedic Surgery.

Stated Meeting, Held December 20, 1901.

George R. Elliott, M.D., Chairman.

Rheumatoid Arthritis.—Dr. Royal Whitman presented a child, twenty-one months old, suffering from a condition which had at first been mistaken for and treated as tuberculous disease of the knee-joint. The

particular interest lay in the fact that it was rheumatoid arthritis; the mistake was not uncommon when the larger joints alone were affected, as the signs were similar in the early stage. At present, both knees are involved, also a wrist, ankle and the fingers. The case was presented because rheumatoid arthritis was rare in young children and to call attention to a common error in diagnosis.

Torticollis.—Dr. Whitman presented a patient showing the ordinary treatment of confirmed torticollis. The permanency of the cure was the especial point to be noted. The treatment was by the open method of complete division of all the contracted tissues, overcorrection of the deformity and fixation for several weeks in plaster of Paris. The advantage of a thorough operation was the ability to dispense with apparatus, while after the subcutaneous method apparatus was often necessary because it is not always possible to completely overcome all deformity. The case showed to a moderate degree hemiatrophy of the face, which was very marked in some instances.

Radical Treatment of Clubfoot.—Dr. Whitman also showed the result of radical treatment of clubfoot in a child eight years of age. One foot had been cured by the ordinary means in early life; the other foot was operated upon July last. The foot that recovered first was much larger than the other—an illustration of the effect of deformity in retarding development. He considered the Phelps open operation the best of the more radical operations for the ordinary clubfoot of childhood and adolescence, the advantage being that the inner border of the foot was lengthened instead of the outer side being shortened, as was the case in certain operations on the bones. This patient was not confined to bed for more than one week; after that it was allowed to walk about on the plaster-of-Paris bandage.

Dr. W. R. Townsend said, in referring to the case of torticollis operated upon by Dr. Whitman, that he could not agree with the latter as to the disappearance of the scar. He had seen many of these scars which looked well shortly after operation, but which had a tendency to grow more unsightly; he had even known keloid to develop. He thought that at all events patients should be warned of the possibility of a scar remaining.

Dr. Homer Girney stated that he had seen a number of cases treated by both methods, open and subcutaneous. He had seen several scars disappear in young children. He considered the subcutaneous method the safest except in very severe cases.

Dr. T. Halsted Myers said a transverse incision would give the same exposure of the operative field and would enable the deformity of the scar to be better concealed.

Dr. Whitman had had no experience with keloid developing late in the scars; if such appeared it was usually within a few months after operation, he thought. He stated it as his experience that the scars practically disappeared.

Extreme Deformity of Rickets.—Dr. V. P. Gibney presented two cases showing extreme deformity of rickets. The upper arms, back and legs were involved, in one case giving the typical deformity of the disease. The second patient showed the lateral spinal curvature, the typical deformity of the thorax, beaded ribs, also deformity of the legs and arms. Both were being treated in the Bradford frame made convex, in conjunction with general constitutional treatment.

Clubfoot Shoe.—Dr. Gibney also presented a patient wearing a clubfoot brace seen in Hartford and used by Dr. Cook as a modificaton of Taylor's clubfoot shoe. In private practice he had been able with this apparatus to control some of the most obstinate cases. In the case presented, treatment was begun when the patient was six weeks old. Several forms of apparatus had been used from time to time, but relapse had occurred. At present, after wearing the modified shoe, the child holds its foot in perfect position and walks without deformity. The apparatus is a good retentive one, though it does not take the place of operation.

Talipes Equino Varus.—A case of talipes equino varus, a child twenty-one months old, was also shown by Dr. Gibney. The deformity was extreme and was corrected under an anesthetic and various methods had been employed; the last time it was seen it presented the typical "reel foot." It was thought that if the head of the astragalus could be removed, the fascia divided and the foot replaced a cure could be effected. A relapse occurred after six to eight months. Under anesthesia the foot was forcibly put in calcaneovalgus. Later a clubfoot spring with pelvic band was put on and served fairly well, except that two sets of apparatus had to be kept on hand. Finally, the modified braces were used successfully.

Dr. Gibney also presented a boy, eleven years old, for diagnosis. He came to the hospital some months ago with the history of an injury four weeks previous, having fallen, striking his hip. He got up and limped about, but the next night could not sleep; he had fever with delirium. On admission to hospital he walked with thigh flexed on pelvis, had little fever and complained of pain in the hip extending to the knee. He was thought to have hip disease and was treated with pulley in bed. After three weeks, the angle of extension was 110 degrees, flexion normal, practically no pain on pressure. There was no apparent abscess and the spinal column was not involved. The diagnosis became doubtful. In October fluctuation was thought to be detected under the vastus externus. Incision was negative. The original diagnosis was finally abandoned and the case was considered one of periarthritis.

Dr. Myers asked Dr. Gibney what would be his prognosis in the case of the spinal curvature in the rickety patient.

Dr. Whitman stated in reference to the case of rickets, that when the patient entered the hospital the spinal deformity was thought to be the most serious of the distortions, and that for that reason the patient was placed on the frame.

Dr. Gibney said that Dr. Whitman had partly answered the question of prognosis. He thought the child should be kept in overextension for a while longer, and that after that a brace would keep the spine in place; as the child developed the deformity would be in a measure outgrown. He considered the cases easy to manage so long as they could be kept under observation in a hospital; outside, the prognosis was not so good; no manual force had been applied to these cases yet.

Dr. Judson said that the clubfoot shoe that was shown seemed more like a modified Taylor brace. It was evidently an effective apparatus. He noticed the absence of an ankle-joint, which was very properly omitted, as better leverage was thus obtained and there was no good reason for the fear that want of motion in the brace would impair ultimate motion in the ankle.

Incipient Hip Disease; Recovery.—Dr. A. B. Judson presented a girl, eight years old, who had been before the Section on November 16, 1900. At that time the history of left hip-disease, covering twelve weeks, had included inconstant lameness, knee pain and reflex, night cries, muscular atrophy and limitation of motion. A steel crutch and high shoe had been worn from November, 1900, to November, 1901. Recovery had been so complete that the only traces were ⅜ inch shortening and ¼ inch muscular atrophy. The case illustrated

the importance of early diagnosis. Traction and immobilization had not been sought. Recovery took place when the limb was freed from the weight of the body by being made pendant. In this artificial environment the focus, which otherwise would have broken into flame, was quenched.

Device for Deformities of the Knee.—Dr. Judson presented a girl, ten years old, wearing a device useful in deformities of the knee. The patient was Case III., white swelling of the knee, presented to the Section October 20, 1899. The problem was to prevent the fixative brace from seeking the inner side, where it caused knock-knee, and to keep it behind to oppose flexion. The brace was made of one piece with the shoe, in such a way that, when the shoe was on, the brace would be in the proper place. A light steel bar extended up the leg and was fastened to the upright part of the brace by a sliding ring keeper. Its lower part, bent at a right angle, was screwed to the under side of the heel of the shoe at an angle to secure the effect desired, keeping the brace behind to oppose flexion or to the outer side to oppose knock-knee.

Softening of the Tibia.—Dr. J. P. Fiske presented a case of localized softening of the tibia at the age of adolescence. The patient, a girl, now fourteen years of age, was first seen in 1898, when she complained of localized pain in the lower part of the leg well above the ankle-joint, thought to be a referred pain due to improper gait. A strap bound around the part brought no relief. The curve at the lower part of the tibia increased. At this time a positive diagnosis of tuberculous disease was made by a distinguished consultant and fixation advised; plaster splint was worn for six months. At the end of that time the leg was in the same condition except that atrophy had occurred; measurements showed that the tibial curve had increased. Two months later exploratory incision revealed negative results. In February, 1901, an osteotomy was performed in the lower quarter of the tibia, the fibula shortened one-eighth inch, the deformity corrected and the leg put in plaster. Ten days after the operation the patient was fitted with an ambulant splint and six weeks later walked without the apparatus. Since then there have been no symptoms. The diagnosis of softening of the lower part of the tibia seems to have been the proper one. There is no difference in the length of the tibiæ.

Congenital Deficiencies.—A second patient presented by Dr. Fiske was one of congenital absence of the fibulæ and outer side of foot, with equinus. The patient was seen at the age of one year. The fibulæ and several of the metatarsal bones were absent and the heel was undeveloped. An osteotomy was performed at once with tenotomy on the tendo-Achillis, and the position of the feet corrected. At present the child is able to go about with a light brace.

Double Congenital Clubfoot.—Dr. Leonard W. Ely presented a patient, one year old, showing the result of treatment for double congenital clubfoot. The point of interest was that the right foot was treated uninterruptedly with a brace and the left with plaster of Paris. In contradiction to the general idea that plaster of Paris causes atrophy, the right leg was shown to be much smaller than the left.

Tendon Transplantation.—Dr. R. A. Hibbs showed the result of tendon transplantation done in July, 1901, for paralysis of the tibialis anticus muscle. The extensor proprius hallucis was inserted into the periosteum of the scaphoid and its distal end into the first division of the common extensus. The patient, twenty-one years of age, exercised a good deal of intelligence in perfecting the action of the muscle with its new attachment. The foot had been in a position of marked valgus, with the scaphoid very prominent. The deformity was completely corrected. He stated that in all his cases during the past two years, when possible, he had attached the transplanted muscles to the periosteum.

Dr. Myers said the point mentioned by Dr. Hibbs, attaching the tendon to the periosteum, was important; he did not believe in matting tendons together; the connecting bands stretched and the union was ineffective. He had just dissected such a case. If the tendons were divided and the live one united to the tendon of the paralyzed muscle, often there was also stretching.

Dr. Whitman said that the operation of periosteal tendon transplantation had been extensively practised by Lange of Munich, who had reported many cases; his own experience with the operation had been favorable.

Dr. Fiske emphasized the importance of transplanting muscle tendons into the periosteum, especially when the muscle was to work at raising the inner side of the foot or the heel.

Congenital Dislocation of the Hip Under Treatment.—Dr. Elliott presented a child, aged two years, upon whom he had reduced a congenital dislocation of the hip by the Lorenz non-cutting method, showing the bandage in position. He presented the patient to show the position of the leg when the dislocation had been successfully reduced. A slight degree of hyperabduction was necessary with the knee pressed back slightly posterior to the transverse axis of the pelvis. There was frequently considerable difficulty in getting the head of the femur into the acetabulum and in getting the knee down to the mid transverse pelvic plane or posterior to it, but unless that could be accomplished the operation should be abandoned as a failure, as relapse was certain. In the case presented he felt quite positive of a good result.

BOOK REVIEWS.

Gynecological Pathology. A Manual of Microscopic Technique and Diagnosis in Gynecological Practice. For Students and Physicians. By Dr. Carl Abel, Berlin. Translated and Edited by Samuel Wyllis Bandler, M.D. With a Chapter on the Embryology of the Female Genitalia and the Pathological Growths Developing from Embryonal Structures. William Wood & Company, New York.

It is only reasonable that, with the development of specialties in medicine that concern the treatment of disease, we should find similar differentiation in such branches of the science as pathology. The present book is a most carefully written and valuable treatise on the subjects enumerated in the title and especially available for the gynecologist and the surgeon.

Part I. is devoted to technique, especially concerning the obtaining of material, the further treatment of it, the management of material obtained by laparotomy and autopsy and a list of instruments necessary for good work. Part II. deals with diagnosis and details the stages for the recognition of all conditions beginning with inflammation and ending with neoplasms. Such affections are discussed as they occur in the vulva, vagina, cervix, body of the uterus, tubes, ovaries and parovaria. Part III. is given up to the embryology of the sexual organs of the female. Special importance is given to pathological growths which develop from embryonal structures. Brevity and clearness mark the style. The text is rendered more comprehensible by one hundred admirable engravings, with numerous distinct explanatory notes for each.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

ADDRESS TO THE GRADUATES OF THE TRAINING SCHOOL FOR NURSES OF THE COLORED HOME AND HOSPITAL.

BY T. GAILLARD THOMAS, M.D., LL.D.,
OF NEW YORK.

WHEN I was requested to address you upon an occasion of such interest as this, which gives you authority in the name of your Alma Mater to go forth and practise one of the most useful and excellent callings of civilized life, I accepted the invitation without hesitation for two reasons. First, knowing that great and praiseworthy efforts were being made to increase, expand, and multiply the very insufficient hospital advantages which this city has heretofore extended to its colored citizens, I felt urged by a sense of duty to do what little lay in my power to aid in so noble and so good a work. Second, a peculiarly kind, friendly, I may almost say affectionate, feeling which I have during all my life entertained for the people of your race prompted me to come before you and to bid you Godspeed upon the admirable career which you have selected for your life-work.

The first twenty-one years of my life were passed in South Carolina in the days of slavery. These were spent in immediate contact with people of your race, whose forefathers had lived for three or four generations under the control of mine. It would be almost impossible after all the confusing and misleading literature of the last half-century to convey to your minds the pleasant relations, the entire confidence, the general feeling of friendliness, which in my boyhood existed between the whites and blacks, except in very rare and unfortunate cases. This experience of my past life taught me to appreciate the kindly, gentle, affectionate nature of the children of Ham, and this feeling of my boyhood has never departed from me. You will not wonder that it should not have done so, when I tell you that the good colored woman, who during the period of my infancy acted as my wet-nurse, departed this life only about ten years ago, full of years and respected by the entire community in which she lived.

All this pleasant sentiment was in later years so suddenly and so rudely shattered by the cruel barbarities of war, that there may be some in this hall to-night who feel inclined to doubt the reality of my representations; but I pledge myself that I have dealt in no exaggeration of absolute fact. Let the skeptical turn to the annals of the Revolutionary War, and they will find unquestionable and abundant evidence of the love of the colored man for the white, so full of true devotion as to make him faithful even unto death. Half a century gapes between those days of my youth and to-night, and still the kindly feeling for your race clings to my mind, as the scent of roses to a broken vase!

Knowing the true mental and moral attributes of the colored race, I feel sure that its members have just the traits which will fit them for the calling to which you to-night pledge your devotion; and in saying this I do not by any means confine myself to the female sex. When the experiment, which is being made by the Colored Home and Hospital in reference to women, is extended to the male sex I feel assured that, for the reasons which I have given, it will prove a brilliant success. It is curious to observe how the mental attributes of certain nationalities appear to fit them for special callings. The English excel in all that relates to seamanship and horsemanship; the French instruct the world in the important and subtle art of cooking. This natural adaptability is due to certain inborn qualities, which, being developed by education, give these races an easy ascendency. So my knowledge of your race assures me of a similar adaptability on its part for the profession of nursing, which, with the required training, will lead to excellent results. Far be it from me, however, to prompt you to depend upon any such supposed natural gift for your future success in life. On the contrary, I propose to impress upon you that the day when a nurse can rely for success upon smiling amiability, a wise way of announcing wordy platitudes, and a habit of reciting lengthy cases of wonderful recoveries, has passed away forever. To-day more simple, more rational, and more sensible tests are applied, and she, who in this line of life hopes to win fame, must rely upon real merit, and upon that alone. Captivating manners, a pleasing personality, and a fascinating presence may for a time deceive the patient and her family, but the judicial doctor will never be misled by these, and will surely detect and expose the counterfeit.

This generous and noble community of New York—to my mind, the most attractive known to the world—is "long suffering and of great kindness." The result is that it allows great evils to live, increase, and grow strong without interference for long periods of time. Then it has the habit of crushing them with the sudden power of an enraged giant; even as it has recently done with the corrupt organization which has so long oppressed us politically. So it was when twenty-nine years ago a mere handful of noble, enterprising women overturned the miserable system of nursing, then extant, and laid the physicians and community of New York under a heavy debt of gratitude by establishing in its stead the system of trained nurses, into whose ranks you have the honor of entering to-night. As if by the

wand of an enchanter, old things in nursing passed away and all things became new. In the place of old and incompetent women, they gave us young and vigorous ones; for ignorance, they substituted intelligence and brightness; for uncouth and irregular methods, thorough training; and for want of discipline, loyalty and devotion to the physician, which give him comfort and support in the most trying hours of his life. A trained army was substituted for a huge militia band; confidence for uncertainty and doubt. All honor, credit, praise, and thanks to the noble women, who have proved the truth of the poet's assertion that "peace hath her victories, no less renowned than those of war." Think for a moment of the many aspects of the benefit which these women have bestowed upon the community. The first advantage which resulted from their labors affected the sick; the second, their families; the third, the physicians; and the fourth, thousands upon thousands of young women, who were not only willing to labor in the new field thus opened to them, but grateful for the opportunity afforded them. When the wondertul change was effected, the world stood amazed at the suddenness, completeness, and apparent ease with which it had been accomplished.

Nothing is further from my mind than the wish to charge the evils of the old system upon the kindly and good women who did their best to make it as efficient as they possibly could. Ah, I pathetically recall too many of these faithful and devoted old nurses with affectionate reminiscence, for this injustice to be possible at my hands! They were merely parts of a poor and inefficient system constructed and fostered by society and not by themselves. May their good deeds be remembered with gratitude and may their souls rest in peace!

Seventeen years ago I delivered an address on an occasion like this, to a graduating class of nurses, in which I pointed out to them the shortcomings which are commonly charged against the trained nurse. Time has so little changed the circumstances that I offer similar suggestions to you to-night, for the purpose of urging upon you the avoidance of pitfalls which will lie directly in your path. Do not be discouraged or cast down from their enumeration, but feel assured that they are brought to your notice from a sincere interest in your welfare, and an abiding hope that, when you encounter them, the words which you hear to-night may prompt you to recognize and avoid them.

1. It is very generally said that the trained nurse often gives so much trouble in the families into which she is called that the advantages of her presence are surpassed by the annoyance which commonly results from it in domestic affairs. Remember that you go to patients' houses at a time when they are deranged by sickness; that you are merely an employee in such houses, that every particle of trouble which you give will be registered against you, will work to your injury throughout the community in which you live, and by the patronage of which you must thrive.

2. We have arrived at a period in the world's history when it is no longer believed that disease is propagated in some occult and mysterious way. When measles, scarlatina, smallpox, or septicemia develop, they are now regarded as the results of disease germs which, attaching themselves to the bodies of individuals, or floating freely in the atmosphere, are wafted from person to person, as the pollen is carried from flower to flower. This entity, the disease germ, strikes down an individual, even as the bullet strikes down the soldier, by its own inherent power. Now these germs are readily carried from house to house, and from individual to individual by the clothing; the nurse who arrays herself in garments not susceptible of washing and thorough disinfection is guilty of criminal recklessness.

3. When you are called upon to nurse for an obscure and unknown physician, one perhaps, whose life has been passed in the depths of the country districts, beware how you presume to ignore him, to despise his authority, and to set your opinions up against his dicta. Remember that you are the nurse in the case, that a nurse's duty is to obey the physician's orders. Are you convinced that he is an ignorant and inefficient man? That is not your affair. Those who employ you employ him, and they employ you not to keep the physician of their choice in order, but to obey his behests, whatever they may be.

4. Regard no duty connected with your office as too menial for your hands; refuse no reasonable request which appertains to the duty of nurse; but render yourselves so perfect in the performance of the smallest details that they shall lose their menial aspect and appear worthy of your hands by reason of the skill which you display in ther performance.

If I proceed further I fear that you will ask yourselves, "Has he not yet done with this list of shortcomings, this array of faults with which, he says, our guild is charged?" Bear with me for one more and one very important piece of advice.

5. Let everything which you learn in the capacity of nurse in any household meet its tomb in your ear! Tell nothing good or bad concerning families in which you serve; for, if you talk of the good, the mention of the bad will assuredly follow, even as the "sparks fly upward." In times of illness the secrets of a family cannot be hidden from your ken; the closet doors are open, and the eyes of the midnight watching nurse cannot fail to see the skeletons which hide within! Can you suggest to me anything more contemptible, more deeply sunk beneath the dignity of womanhood, more repulsive to propriety, than the treacherous exposure of the poor bleeding wounds of sorrowing households to the public gaze and to the gossip's tongue?

An Eastern tale is told of a hakim who, coming forth from the Sultan's palace, was asked, "How does the Sultan?" "The Sultan sleeps," he re-

plied. In one hour from that time he was exiled from Turkey, and told that he had just escaped the bowstring because he had dared to tell the secrets of the Sutan's palace to the world. Learn as little as you can of the domestic affairs of households into the bosoms of which you are admitted, and that little keep within your breasts shut up, as secrets entrusted to your honor!

Let me in all seriousness sketch for you, with pen, not with brush, the type of a model nurse, relying upon a full and lengthy experience for the correctness of my work. She stands before me at this moment, not as one whom I have really known, but as one of a class which in my professional career has been a large one. She is a comely, wholesome woman, not pretty, not handsome, but blessed with an honest countenance, which says as plain as whisper in the ear, "You can trust me." For a long time I tried to find out why it was that she was so generally popular, not as a woman, mind you, but as a woman-nurse, and after abundant experience I decided that it was because she had a heart which was full of amiability, kindliness, loyalty, and truth. Of her attainments I have little to say, for she is, as a matter of fact, only equal to the average. I have found that average good enough for all my demands, and I have sometimes found some of the brightest, most talented nurses to be the least attractive and agreeable of women in the sick-room. My model nurse is quiet, not talkative, not boastful, not inclined to become very intimate with patients, patients' friends, or doctors, but polite and friendly with all of them. She seems to be impressed with the idea that she is a nurse, not a friend or companion. I will not tell you of her faithfulness to the sick, or of her loyalty to the physician; because those virtues are so very general among trained nurses. She has one peculiarity, which if any of you lack, you need not mourn, for it may readily be cultivated; it is a well-modulated and sweet voice. If she has to announce to family or physician that the patient will be dead within an hour, it mitigates the terrors of the awful news, and as far as this is possible lessens the inevitable shock of the announcement.

My nurse is now approaching the end of that career through which I have with so much interest watched her passing serenely onward, shedding brightness, courage, faith, and hope upon all who have come within the circle of her benign influence! There is no reason why any one of you should not accomplish all that she has done and at the end win the praise which I give to her.

And now, Graduates, in saying farewell, let me cordially and sincerely bid you Godspeed upon the useful and beneficent career which you have adopted. May your labors in the future serve to carry comfort, hope and health to many a suffering couch: may your efforts at maintaining yourselves as dignified and independent women meet with that success which energy and industry ever command; and may you at the end of well-spent lives have cause to look back upon the ceremonies of to-night and upon those whose hearts at this moment beat in kindly sympathy with you with pleasant and grateful recollections.

HEREDITY.*

BY J. W. KIERNAN, M.D.,

OF CHICAGO;

FELLOW OF THE CHICAGO ACADEMY OF MEDICINE; FOREIGN ASSOCIATE MEMBER OF THE FRENCH MEDICO-PSYCHOLOGIC ASSOCIATION; HONORARY PRESIDENT OF THE SECTION ON NERVOUS AND MENTAL DISEASE, PAN-AMERICAN MEDICAL CONGRESS, 1893; MEMBER OF THE INTERNATIONAL MEDICAL CONGRESS, 1901.

THE individual who comes into the world is, as Luys[1] remarks, but one link in a long chain unrolled by time whose first links are lost in the dim past. His ancestors are not merely his parents, but their progenitors likewise. These parents may have had ancestors of different type, with qualities seemingly absent in the child, which reappear in its descendants. Embryological demonstrations to the contrary notwithstanding, father and son are regarded as one being having two births, each time leading, as Moreau[2] (de Tours) remarks, the same life under the same conditions. Heredity is usually acepted as an expression of the inseparable entity of the individual. Man is regarded, not as a complex balance of cells organs, and resultant function, but as complete from the outset. This conception, fundamentally unsound, further refers the leading part to the parent who plays the least important rôle. The ovum, not the spermatozoon, is the factor in the development. Development regarded as settled and uninfluenced by environment until extra-uterine life has begun, pursues only an upward process.

Intra-uterine life, however, has an environment varying with shifting maternal conditions which governs fetal nutrition and development. All vertebrate embryos assume several forms successively, before definitely differentiating. Supernumerary organs exist in these common forms as phases of embryonic life. From this necessarily arises the united rôle of development (the creative phase of evolution) and degeneracy (the suppressed phase). Evolution of an organ or of its different parts is degenerative if it tend to the ultimate abolition of that organ or of its parts. Evolution is progressive if it tend to development likewise. Degeneracy and development, in the human fetus, passing successively through all vertebrate embryonic stages, play an essential part in the disappearance of lower vertebrate organs for the benefit of typically human organs. The balance between them governs proper evolution in intra-uterine life of the compound animal man. In embryonic development, organs, as De Moor[3] points out, do not always repeat successive phases through which they pass during evolution. While recapitulation of ancestral stages occurs, evolution often takes place

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without leaving traces of some stages. This is especially true of complex organs arising by many lines of evolution converging in a single structure which becomes the seat of special functions or sets of functions. The neuron passes successively through stages corresponding to those of adult fish, frog, bird, and mammal. Here development consists of increasing cell complexity without formation of unnecessary rudimentary parts. The amount of assimilable nutriment for the fetus being fixed,[4] a struggle for existence results through the law of economy of growth by which, as Roux[5] has shown, less important structures suffer for the benefit of the organism as a whole. Through this law, cells surrender reproductive powers and other functions to secure greater specialization of one function for the benefit of the organism. Local atrophies, hypertrophies and degenerations hence are required to develop the child from the mass of contending embryonic possibilities. Potentialities of lower vertebrate structures and organs develop at certain stages in human intra-uterine life to retrogress in preparation for the next higher stage. To carry the organism through these peroids of stress, not only is an initial velocity given by heredity needed, but likewise favoring environment.

The initial velocity arises from factors furnished from the ovum and minor elements from the spermatozoon. The ovum, partly the product of female heredity, is largely affected by female environment up to the time of conception. To a lesser degree this is also true of the spermatozoon. The greater influence of the ovum is shown in the imperfect occurrence of parthenogenesis in even the highest vertebrates. Phenomena of certain ovarian cysts demonstrate this to be the case even in woman. The spermatozoon simply adds nutriment to the ovum, determining to a limited degree type of development, but only to a minor extent initiating this. Bisexual reproduction resultant on the law of economy of growth enables reproduction to occur with less waste of force and material than unisexual. The interests of the individual and the race in reproduction therefore conflict, as Herbert Spencer long ago demonstrated. Since it is impossible that these two forces should counterbalance, equilibrium must reestablish itself in orderly fashion. The two forces preservative of every animal group (the impulse of every individual to self-preservation and the impulse to the production of other individuals) must vary in an inverse ratio. One must diminish when the other augments. Degeneration is a process of disintegration, the reverse of development or integration. Hence, if the processes which complete and sustain individual life be termed individuation and those which aid formation and development of new individuals be termed generation, individuation and generation are necessarily antagonistic. The higher and larger organisms never reproduce unisexually, the lower and smaller organisms reproduce with marked rapidity by this method. Between these extremes unisexual reproduction decreases while size augments. When growth of the individual is rapid reproductive organs are imperfectly developed and inactive. Reproduction, hence, indicates decrease in intensity of growth and may cause cessation. Great fecundity is always attended by marked mortality. Each superior degree of organic evolution is accompanied by an inferior degree of fecundity. The greater the germ the less is the individuation and *vice versa*. The greater and more complex the organism, the less is the power of multiplication.

An exaggerated estimate of the significance of these facts led Weismann[6] to maintain that there was a specially organized living hereditary substance which unlike the substance composing the perishable body of the individual is, in all multicelluar organisms, transmitted from generation to generation. Here is obvious the old error of organism entity at conception mingled with a half truth as to type preservation.

In determining retrogressive change for advance two factors are in alliance against two others. Type heredity and family heredity or immediate atavism oppose distant atavism and immediate heredity. Atavism does not necessarily imply type degeneracy. From the conflict of these forces it is obvious that conditions favoring direct heredity can but seldom occur. The embryological basis of Weismann's hypothesis was the assumption that the first division of the cell or ovum was into body plasm and germ plasm. The phenomena of asexual reproduction shown in the experiments on invertebrates of J. Loeb[7] had thrown doubt on this assumption and had strengthened the results contradictory of Weismann, obvious in the experiments in reproduction of double monsters by E. C. Spitzka,[8] Dareste, Duval and others. The embryologic basis of Weismannism was completely demolished by experiments in the Naples Aquarium,[11] demonstrating that even when the cell divided sixteen times, separate cells, dissociated from the group, could pursue a separate existence and become well-developed organisms of the parent type. Weismann, forced to a partial though concealed abandonment of his central position, had admitted in his last work that "the origin of a variation equally independent of selection and amphimixis is due to the constant occurrence of slight inequalities of nutrition in the germ plasm. These variations are at first infinitesimal but may accumulate, and in fact they must do so when the modified conditions of nutrition which gave rise to them have lasted for several generations. But although it is improbable that individual variability can depend on a direct action of external influence upon the germ cells and their contained germ plasm, which must be very difficult to change, yet it is by no means to be implied that this structure may not possibly be altered by influences of the same kind continuing for a very long time."

Disturbance of the balance governing embryo-

logical development causes reversion to the excessive fecundity of the earlier biological types. Such reversion produces conditions summarized half a century ago by Moreau (de Tours) into the following categories: First, absence of conception; second, retardation of conception; third, imperfect conception; fourth, incomplete products (monstrosities); fifth, products whose mental, moral and physical constitution is imperfect; sixth, products specially exposed to nervous disorders in order of frequency as follows: epilepsy, imbecility or idiocy, deaf-mutism, insanity, cerebral paralysis and other cerebral disorders; seventh, lymphatic products predisposed to tuberculosis and allied disorders; eighth, products which die in infancy in a greater proportion than sound infants under the same condition; ninth, products which although they escape stress of infancy are less adapted than others to resist disease and death. The absence of conception is generally due to intense cellular proliferation in the ovum.

Degeneracy hence, so far as heredity is concerned, is not an introduction of new factors in the shape of acquired effects, but reversion to lower types of cells, organs and functions. Conditions, as Bland Sutton[9] shows, pathological in one animal are often physiological in another. As embryology demonstrates, conditions physiological at one phase of embryonic development are pathological at another. These conditions frequently result moreover from destruction of inhibitions which permit functions to exceed normal limits. Pathology consists, as Virchow[10] shows, merely in the introduction of a new factor into the organism. Change from one species into another either in individual animals or plants or individuals or their tissues cannot take place without anomaly, since without anomaly such new departure is impossible; the physiological norm hitherto subsisting is changed, which change cannot well be called anything but anomaly. Formerly an anomaly was called pathos. In this sense every departure from the normal is a pathological event. Such pathological event may be caused by an external force, a chemical substance or a physical agent, producing in the norm an anomaly (pathos). This may become an hereditary foundation for characteristics propagated in a family. These belong to pathology, though they produce no injury. Pathological does not mean harmful nor does it indicate disease. Disease in Greek is *nosos* and it is nosology that is concerned with disease. The pathological may sometimes be an advantage to its inheritor.

The Weismannian doctrine, anent non-inheritance of acquired characters, may be true if the sense in which acquired is ordinarily employed be accepted, especially since, as Weismann admits,[12] conditions like tuberculosis may produce "habits" in the ancestor which may be transmitted to the descendant. These "habits" consist in structural peculiarities, such as narrowness of the chest, etc. The conflict between the extreme hereditary doctrine and the Weismannian denial of inheritance of acquired characters or variation, has been harmonized by Roux, who shows that, by the law of economy of growth, there occurs an internal or physiological struggle for existence between organs, cells and protoplasmic molecules of the organism. Hence in heredity surrounding forces are always necessary, not simply the condition of activity by an essential element of the final product.

How far initial velocity from heredity may carry the product of conception is determined by the intensity of the initial velocity and the nature of the environment at periods of intra- and extra-uterine life. At such periods through suppressive economy certain parts in the evolution of organs disappear and in the evolution of organisms certain organs. Since disappearing and developing tendencies necessarily center around the time when functions are to be lost by the disappearing and others gained by the developing, periods of stress appear around which occur the struggle for existence between parts of organs and between organs themselves.

The human embryo has potentialities of ancestral gains as well as lower vertebrate possibilities. It does not attain to the full the potentialities of its ancestral gains, since gains of the individual under the law of individuation are sacrificed to race reproduction. The child with its relatively enormous head, its large protuberant abdomen, its small chest, short feeble legs, comparatively vigorous arms, smooth almost hairless skin, large liver, kidneys, thymus and suprarenal capsules, presents, as Havelock Ellis[13] remarks, an anatomical picture distinct from that of the adult. The indications of the child's physiological and psychical life are in the same direction. Anthropoid apes at an early life period are unlike the adults. The young anthropoid is comparatively human, while the adult is comparatively bestial. The young ape has a smooth globular head and relatively small face like man. The profile is more human, with little prognathism, the skull base is more humanly formed than that of the adult and the brain is relatively very much larger. The gorilla fetus differs from the adult in a much larger head, a longer neck, a more slender trunk, shorter thumb and greater toe. The head is more globular, the face less prognathous and the hand more man-like. Here the fetal gorilla approaches man. The adult rapidly develops into a condition far removed from this man-like state. The brain becomes relatively very small, the skull becomes hideous with huge bony crests, outstanding superciliary ridges, projecting jaws and receding chin. The dark hairy body becomes more bestial. The female ape remains midway between the infantile and the adult male condition.

So far as man is ape-like he resembles the infantile ape, not the adult. Man falls away more and more from the specifically human type of early years. The ape in a short life goes further along the line of premature senility. He starts in

life with marked human endowment, but soon falls far from it. Man starts in life with a still greater endowment but to a lesser extent falls from it, in adult life approaching the ape. Up to and soon after birth the higher animals, like the apes and man, have for a time rapid vigorous movement upward in zoological evolution, his fetal or infantile development, ceasing to be upward, is later so directed as to answer to life wants of the species. Henceforth and throughout life, a development of lower characters, a slow movement toward degeneration and senility occurs which is necessary to ensure preservation and stability of the individual and species. Fetal evolution sheltered from the world is in an abstractly upward direction. After birth, further development is a concrete adaptation to the environment conflicting with upward zoological movement. The infantile condition in man and ape approximates most the human condition. The adult condition approximates the anthropoid. The human infant has, in exaggerated form, the chief distinctive human characteristics, large head and brain, small face, hairlessness and delicate bony system. The adult form is erroneously assumed to be more highly developed than the infantile. From the standpoint of adaptation to environment the hairy, large-boned, small-brained gorilla is better fitted to survive in the struggle for existence than his delicate offspring. From a zoological point of view anything but progress occurs.

From about the third year onward in man growth, though a necessary adaptation, is to some extent growth in degeneration and senility. By it man is brought somewhat nearer the apes. Among the higher races such growth is less marked than among the lower. The child of many lower races is scarcely if at all less intelligent than the child of the higher. As he grows up the lower child becomes stupid and obtuse and all social life falls into hide-bound routine. The higher retains much child-like vivacity. The highest human types represented in typical men of genius strikingly approximate the child type.

Initial hereditary velocity is apt to be affected by maternal environment at two great periods of intra-uterine stress, like the senile (or simian) period (which occurs four and a half months after conception) and the period of sex differentiation.[14] Arrested development at the senile period of intra-uterine life by any process, which checks evolution, may influence extra-uterine development. When produced by syphilis (to which the senile appearance of new-born children is so frequently due) the child, because of organs which have undergone premature senescence, fails to pass through the first dentition or readily falls a victim to infections. Precocity, whether intellectual or physical, expresses arrest of development at the senile period which causes the child to pass through the period of growth and senescence rapidly. The truth of the popular opinion of precocity (early ripe, early rotten) is very demonstrable. Of six cases[15] of early puberty in boys, one, virile at one year, died senile at five. A girl menstruated at two, became pregnant at eight, a grandmother and senile at twenty-five. Premature senility may evince itself in arterial atheroma at the periods of extra-uterine stress. This has been observed frequently in the children of vegetarians and after the essential fevers.

If initial hereditary velocity be tinctured with senility at this period, the individual fails to reach the high promise of the child. This often results from the struggle for existence between the reproductive system (representing the race) and the central nervous system (representing the individual). The senile tendency is therefore aided by gains of the reproductive system at the period of sex differentiation. Sex, as Drusing[16] has shown, is not inherited, but results from various factors acting not only at the time of impregnation, but at various times thereafter. Long after impregnation, when the embryo is already developed, nutrition is still influential and may change the tendency even after sexual organs have developed. Poor maternal nutrition may arrest female development, causing reversion to the male type. The psychic side of sexual differences should normally, as it often does, remain undifferentiated until adolescence. Adolescence is affected by atavistic tendency to simian senility, which implies its early onset.

The psychic phase of instincts so fundamental as the reproductive instinct may appear even when there is congenital absence or rudimentary development of organs upon which its expression depends.[17] Psycho-sexual manifestations may remain indifferent until adolescence, may be of homosexual type (the same sex), may be of heterosexual type (opposite sex), or may be hermaphroditic (both sexes). Three conditions (infantilism, masculinism and feminism) and a mixed state may result from arrested development before, at, and after sex differentiation. As the inferior organs and sex nerves are differentiated ere the psychic phase, this side of sex may be determined only in extra-uterine life. All three conditions are arrested developments of child type potentialities.

The struggle for existence between the central nervous system and the reproductive system usually occurs with greatest intensity between fourteen and twenty-five. The break-downs at this period are expressed in hebephrenia, dementia præcox, and other psychoses of puberty and adolescence. From the puberty struggle for existence between the chondrocranium[18] (primitive skull developed from the vertebræ) and its later type as supplemented by the dermal bones, the nervous system may take a distorted ply, arresting bodily, nervous and mental development. Infantilism arrests the potentialities of the child. Body and face remain at the child-point, or body and nervous system are checked, or the nervous system or certain organs alone are affected, while the body goes on to full development. The

face may be arrested at any period from birth to puberty, hence many persons retain a youthful appearance throughout life. These people are often vain, egotistic and of weak mental and moral stamina. The females are often sexually anesthetic, harlots, and allied beings, like prurient prudes, hysterical reformers or gossip-mongers.

As the female type most nearly approximates the potentialities of the child, arrests of its development may result in masculinism and feminism. The female may proceed so far in development as to have female organs and their functions, while retaining predominant traces of the male. The male may proceed toward the female type, but ere full sex differentiation occurs further development has been checked and the male type becomes predominant. Arrested development may take place at any stage in embryogeny. The male preserves female breasts while normal in other respects or presents crypt orchidism or sloping shoulders while otherwise masculine. His nervous system may take such a ply that at puberty the sexual instinct is feminine in type. This may extend merely to extreme modesty toward males, and intense liking for female occupations or a disgust for those of the male.[19] In the female, identical conditions occur.

The sexo-psychic side is sometimes entirely dormant until adolescence. Education, then, may give sex direction rather than innate tendency. A male underwent arrest of development in evolution toward the female type, and had been brought up as a girl. "He" had pleasing womanly qualities and was married thrice to intensely devoted husbands. The real sex was not suspected until necropsy demonstrated that the supposed woman was a man. Where the nervous system has taken one sexual ply while the body has taken another, beings result which need careful special training during infancy, childhood and adolescence. Sometimes these beings present in addition to the sexual distortion, mental defect or moral obliquity or both.

In higher and lower races tendency to sex predominance is in different direction. The lower race female resembles the male of her race. The man of the higher races resembles in mentality and pelvis the woman of his race. This is partly due to intrusion in the course of evolution by the male on female occupations. All occupations other than war, hunting and fishing, were created by woman.[20] The higher race male, while taking on female intellectual and esthetic qualities, retains male mental and physical sexual characteristics which, in accordance with evolution, are less explosively manifested than in the male of primitive races. While sex differentiation as to special sex organs may not be arrested at this period, still normal sex development may be so affected as to produce premature sexual appetite expressions evident in generalized pleasure[21] rather than conscious sex direction. Such often occur in healthy girls under one year without genito-urinary irritation. This generalized pleasure underlies that auto-erotism of future life into which, as Havelock Ellis has pointed out, the sexual emotion may be absorbed and even entirely lost in self-admiration. This Narcissus-like tendency of which the normal germ is symbolized by the mirror is sometimes found in men. In women it occurs sometimes in association with an attraction for other persons to which it is normally subservient. In the extreme form there is indifference to sexual gratification or admiration of the opposite or the same sex.

Among factors usually accepted as part of heredity are congenital influences arising from maternal environment during pregnancy. Pregnancy, according to Virchow's definition, is pathological so far as the mother is concerned, since it disturbs the physiological balance previously existing in her. With recurring pregnancies the reaction to this pathological factor tends to decrease unless aided by other influences. Since the physiological balance of the mother is disturbed she becomes more susceptible to outside influences. From such susceptibility variations in fetal environment result. These underlie the so-called "maternal impressions." The fetus very decidedly reacts to sensory impressions on the mother. Women, as Féré[22] has shown, often in an ordinary dream producing but very moderate excitation, not as a rule interrupting sleep, are awakened by fetal movements. The dreams have nothing of the nightmare character, but are ordinary phenomena of sleep. Maternal mental changes hence excite fetal motor reactions which, like sensorial excitations, are stronger in the fetus than in the mother. The mechanism of these is due to unconscious movement of the uterine muscular wall.

Such factors entering into fetal environment influence progress. Maternal strength hence plays an important part. Much alleged heredity, charged to paternal defects, arises from the influence of these on maternal nutrition. Albeit paternal deficiencies are present at marriage, the influence of these is very often not obvious until one or more children have been born. The influences of paternal defects in producing maternal neurasthenia must therefore be taken into account.

Most hereditary defects are expressions of weakness along lines of least resistance and not due to direct inheritance. Epilepsy is often an expression of inability to pass periods of stress without motor explosions. It therefore expresses an arrest of development at certain phases in childhood. Through ignorance of this fact convulsive disorders of childhood often pass into epilepsy. Through that law of the nervous system whereby nerve action, once occurring, has a tendency to recur, habits are established and likewise quasi-periodic disorders like epilepsy. Weismann sciolistically charges epilepsy to microbes, explaining its greater maternal transmission by the exceedingly crude notion that since the ovum can carry more microbes than

the spermatozoon, epilepsy occurs more frequently from maternal heredity. The "habit" transmission of Weismann, however, explains the origin of epilepsy more logically than his bacteriological Pegasus.

From the standpoints of embryology, biology and pathology, direct inheritance of aught but systemic vigor or weakness, taking the line of least resistance, may be doubted. Weismann's position, so limited, seems justifiable.

The impact on the initial velocity of heredity enables it to pass through or be arrested at the periods of stress. The effects of such arrests are determined by the points of least resistance. Such points of least resistance are transitory structures like the hair, ears, teeth, jaws, as well as the later acquirements of the race.

Under the law of economy of growth, arrested development may produce excessive growth or atrophy or both. In this way a scion of degeneracy often gains in nervous system and brain what is lost elsewhere. Whether a pathological result is beneficial or detrimental must be determined by the law of relativity, not by the pathological event itself.

That acquired defects sometimes exert an influence in determining the line of least resistance is shown by the results of circumcision. Medical opinion to the contrary notwithstanding, Jews are born with a partially-developed or absent prepuce so frequently that no comparison can be made with the non-circumcising races. The centuries old Talmudic discussion anent Jewish Ritual[23] to be followed in cases where the boy is born without prepuce significantly demonstrates the frequency of this, since theologians do not cross a theological bridge in ritual until they come to it. Furthermore, conditions resultant from the "habit" inheritance admitted by Weismann provide an ample line of least resistance sufficiently explicatory of the seeming inheritance of acquired characters.

This is excellently illustrated in a family whose history I reported four years ago.[24] The family originated in the Eastern States, but branched southward and westward. A farmer lived twenty miles distant from his nearest neighbor whose only daughter he married. She led a lonely life till her courtship at the age of twenty-eight by the farmer, then three years younger. The farmer married her for $200, after having impregnated her. He then found lead on his farm and went to a city. A stock company bought his farm and launched him into the stock market, where he made money, more as a cunning tool than adventurer. He became a high liver, gouty and dyspeptic and died from gouty kidney at the age of seventy years. The couple had five children. The eldest child became a "Napoleon of Finance," had his father's cunning and died wealthy within the pale of the law. He married a society woman; the last scion of an old family. The second child (a daughter) was clubfooted and early suffered from gouty tophi. She married a society man of an old family who had cleft palate. The third child (a daughter) had congenital strabismus. She married a man who had irregular migraine. The fourth child (a daughter) was normal. She married a thirty-year-old businessman, in whom ataxia developed a year after marriage. The fifth child (a son) was ataxic at eighteen. The scions of the "Napoleon of Finance" and the society woman were an imbecile son, a hysteric, a female epileptic who had a double uterus, a nymphomaniac, and a society man who wrote verses. The cleft-palated society man and clubfooted woman had triplets born dead and a strabismic, migrainous son who, left penniless by his father, married his cousin, the nymphomaniac daughter of the "Napoleon of Finance," after being detected in an intrigue with her. The migrainous man and strabismic daughter of the farmer stock-broker had a sexual invert masculine daughter, a daughter subject to periodical epistaxis, irrespective of menstruation, as well as chorea during childhood, a normal daughter, a deaf-mute, a phthisical son, a cloacal daughter, an ameliac son, a cyclopic daughter born dead and a normal son. The sexual invert married the versifier son of the "Napoleon of Finance." The progeny of the normal daughter of the farmer stock-broker and the ataxic man were a dead-born sarcomatous son, a gouty son with early tophi, twin boys paralyzed in infancy, twin girls (normal), a normal son, and a son ataxic at fourteen. The progeny of the nymphomaniac and her strabismic, migrainous cousin were a ne'er-do-well, a periodical lunatic, a dipsomaniac daughter (who died of gastric cancer), deformed triplets who died at birth, an epileptic imbecile son, a hermaphrodite, a prostitute, a double monster born dead, a normal daughter, and a paranoiac son. The ne'er-do-well married his epistaxic cousin. The gouty son of the farmer's normal daughter married the hysteric daughter of the "Napoleon of Finance." They had a son born with unilateral asymmetry, a prostitute, dead triplets, a male sexual invert, a color-blind daughter, and a normal son. The color-blind daughter married a paranoiac grandson of the "Napoleon of Finance." The progeny of the sexual invert and the versifier (who were soon divorced) were a periodical nymphomaniac, who had some artistic and literary talent, and a son, who died of gastric cancer. The scion of the ne'er-do-well and the epistaxic woman were a moral imbecile, a "bleeder," a stammering daughter who had uvula deformity, a deaf-mute cryptorchid, dead-born triplets, an infantile paralytic son and dead-born quadruplets. The progeny of the paranoiac and his color-blind cousin were an exophthalmic daughter, an epileptic cryptorchid, a cleft-palated imbecile with a cloaca, dead-born quadruplets, an idiot boy, and a "bleeder."

Among the factors influencing points of least resistance are toxic products from maternal autointoxication and toxins of various contagions and infections. Decades ago alienistic biologists observed that similar degeneracy stigmata re-

sulted in the offspring of the tuberculous, syphilitic and neuropathic. During the reaction from the early views as to the intensely specific nature of luetic consequences, which the elder Fournier led, it became evident that the non-specific effects of luetic heredity were as marked as the specific. The ground-work for this view was experimentally demonstrated by Charrin and Gley[25] in researches upon the influence of parental reception of virus on the offspring. The bacillus of blue pus or its toxins was inoculated. The results were not uniform. Most frequently, sterility, abortion or birth of progeny ensued. The offspring, in rare instances, survived; more rarely still were they healthy. Rabbits born of these undeveloped animals sometimes had enormous epiphyses, the diaphyses being shortened. Of five rabbits born of one pair inoculated, two were normal and a third (whose ears were rudimentary) died in a few days. The ears in the other two were fragmentary with jagged upper edges. The tails were two centimeters long. The external orifice of the vagina (one rabbit was male and the other a female) was oblique. One of the limbs (the hind in the male and the fore in the female) was much shorter than its fellow and ended in a stump, there being no foot nor toes. The results of these experiments are borne out by careful analysis of the effect of syphilis, tuberculosis and allied contagions on the offspring. As E. Fournier[26] and others have shown these may have nothing specific *per se*, but are evinced in congenital inferiority of constitution, of temperament, of vital resistance or in retardation, arrest or imperfection of development, mental or physical or in manifest organic changes; either organ malformations or monstrosities. Toxins produced by germs or poisons produced by maternal nutritional defects may cause arrest, retardation, or imperfection of development of children of otherwise healthy mothers suffering from contagions and infectious or nutritional disorders or defects just precedent to, or during pregnancy, or during lactation. During periods of stress, moreover, toxins or allied substances generated in the child's organs may cause bony and dental arrests, retardations and imperfections of development, so frequently noticed after scarlatina, pneumonia, crebrospinal fever, etc., as well as in rickets and in allied conditions during infancy and childhood. Here two factors are evident, the weakened constitution of the ancestor which, as even Weismann admits, may affect the germ plasm, and, second, the toxemic state that affects fetal nutrition. Strictly speaking, this last cannot be called a hereditary factor, albeit it results from weakened maternal nutrition.

The origin and character of defects and gains depend so far as beneficial or deteriorating influence is concerned upon the law of relativity. A lengthy discussion of the relation of genius to degeneracy has resulted from non-recognition of this factor. Genius, according to Huxley,[27] is innate capacity of any kind above the average mental level. From a biological point of view a genius among men stands in the same position as a "sport" among animals and plants and is a product of that variability which is the postulate of selection, both natural and artificial. On the general ground that a strong and therefore markedly abnormal variety is, *ipso facto*, not likely to be so well in harmony with existing conditions as the normal standard (which has been brought to what it is largely by the operation of those conditions), a large proportion of "genius sports" are likely to come to grief physically and socially and the intensity of feeling which is one of the conditions of genius is especially liable to run into insanity.

Genius sometimes has such relationships, but they are not necessary to it. The fact that the highest promise of the child type is shown in the adult by the genius emphatically destroys the claim that genius is still a "sport."

The genius, as Herbert Spencer[28] has shown, is, together with the whole generation of which he forms a part along with its institutions, its language, manners and multitudinous arts and appliances, a resultant. Genius depends upon the long series of complex influences which have produced the race in which it appears and the social state into which that race has grown. All the things of which the genius is the proximate initiator have their chief causes in the generation from which he descends. The more the "sport" appears in the genius, the further he departs from race types in the direction of degeneracy. Not in the genius, but in the "sport" element is shown the deficiency. The genius is an expression of race gains that have survived intra- and extra-uterine periods of stress as well as race senescing influences.

Environment during puberty and the formative periods determines properly-balanced development of genius. Undue intrusion of the reproductive element sacrifices the individual to the race. This element marred the otherwise complete self-culture of that excellently-balanced genius, Goethe, who was *facile princeps* as poet, philosopher, experimental scientist and sociologist. The influence of environment crushes out many a potential Goethe, as Ruskin has shown. The law of economy of growth produces the genius whether well balanced or of "sport" type.

How far pathological events may favorably influence the future at plastic periods of heredity is shown in Cuvier and to a lesser extent in Sir Walter Scott. Hydrocephalus here prevented premature closure of all sutures permitting dermal bones to supply chondrocranial deficiencies and favoring replacement of cavities which, while not functionally active, gave full scope to nerve tissue. Here a pathological event proved destructive of degenerating factors, preventing retrogression of brain tissue resultant on suture closing.

Heredity obeys no absolute law in details, but is governed by a struggle between contending forces. Initial hereditary velocity is an important factor, but so likewise is intra- and extra-uterine

environment, especially as constituted by maternal strength during intra-uterine periods, during periods of nutrition by the mother, and during periods when the child is under maternal training. Heredity is a prophecy of what *may* be, not a destiny which *must* be.

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THE LIMITATIONS OF MEDICAL THERAPEUTICS.[1]

BY FRANK BILLINGS, M.D.,
OF CHICAGO.

The successful application of remedies to disease has not kept pace with the immense advancement in the knowledge of pathology or of diagnosis during the last ten years.

The instruments of precision in diagnosis, especially the microscope and the various reactions which may be obtained in the bacterial and chemical laboratories, enable one to separate and recognize the differences between the infectious fevers and various other diseases of organs of the blood.

Thus, typhoid fever, malaria, plague, diphtheria, epidemic meningitis, cholera, epidemic dysentery, amebic dysentery, tuberculosis, gonorrhea, tetanus, and relapsing fever may all be recognized with certainty, not only by the clinical course, but by the microscopical examination of the blood and of the exudates, transudates, etc., supplemented by laboratory bacterial and chemical examinations. Of the various diseases not infectious in character, or at least not now recognized as infectious, and the general diseases which affect the blood especially, the present methods of examination enable us to more certainly diagnose and to separate the one from the other.

For instance, the blood is now fairly well understood so far as its morphology is concerned. We recognize ordinarily the primary and the secondary anemias; we differentiate the different types of leucemia; the modern methods of examination of the stomach enable one to recognize with reasonable certainty ulcer and carcinoma, and to differentiate them from the less severe chronic gastritis.

This great advance in our knowledge of the cause of disease and the improved methods of examination which enable us to recognize more certainly and to differentiate disease have had their influence on therapy. This influence, however, has been chiefly in the application of the principle of the production of an artificial immunity and at the same time the introduction into the body of curative antitoxins.

We may be justly proud of the use of the antitoxin serum of diphtheria, of tetanus, of plague, of dysentery, of cholera and of the antivenomous serum in intoxication due to wounds of poisonous serpents, in the cure and prevention of these several diseases. The application also of prophylactic fluids, such as that of Haffkine for plague, and the use of like preparations of fluid for other diseases has been followed by equally good results as compared with the serum-treatment in the prevention of disease. These notable results justify the belief that we shall some day apply the same principle to the treatment of most, if not all, of the infectious diseases.

Until the discovery of these practically specific means of treating the infectious diseases, the only remedies that in any way resembled specific drugs in their effects were mercury and quinine. Empiricism taught us that mercury was almost uniformly curative of syphilis and the specific action of quinine in malaria came in the same way. Even now the accurate knowledge which we have of malaria has enabled us to apply quinine to the relief of the infection more rationally and perhaps with better results than before.

The more exact knowledge we possess of the infectious diseases and of the local and chronic disease processes of the body has enabled us to apply specific medication in a limited way only. If we add to this the drugs quinine and mercury, which empiricism has shown to be practically specific, it still leaves an immense field in medicine in which the application of curative drugs is based upon insecure grounds. The application of drugs in this field can never be exact. Therapeutic practice in consequence must vary and differences of opinion arise in the future as they have in the past. It is to this field of therapy that I especially desire to direct your attention and to say something of its remedies.

For purposes of description I shall divide therapists into three classes to arrive at something definite concerning the limitations of medical therapy, and I shall take up the theories and practice of each one of these three classes.

In the first place I should name the nihilists in therapeutics. To this class belong those among us who are materialists in medicine. The man who works much in the dead-house and in the pathological laboratory and sees with the naked eye or the microscope the morbid changes which occur in organs finds it hard to believe that these conditions can be removed or even modified by drugs. This belief is further strengthened by the

[1] Address on Medicine delivered before the Ohio State Medical Society, at Cincinnati, 1901.

fact that the infectious diseases are self-limited, and, with the exception of malaria and syphilis, have not been influenced in the past by the application of medicines. The surgeon, too, whose field of work is along mechanical lines is apt to lose confidence in drugs as curative agents. His belief or faith in drugs is modified by his operative experience. The disease processes which in some instances his knife so readily removes, he finds it hard to believe may be much modified or even removed by the rational use of drugs. He does not understand that the morbid changes do not kill, but that it is the result of the morbid changes upon the functions of the organs which is disastrous. As an example, chronic interstitial hepatitis rarely, if ever, of itself, kills. The amount of liver tissue left even in extreme atrophic hepatitis is enough to maintain life. The invalid dies because of toxemia due to the loss of the full modifying effect of the liver upon the food-products which pass through it, or to the mechanical effects of the contraction of the cirrhotic tissue upon the venous radicals and the consequent injurious effect upon other organs and also upon the supervening dropsy.

Every rational physician knows that he may not modify the true cause, the liver cirrhosis, but he may materially modify, by proper remedies, the toxemia and the venous stasis and thus relieve suffering and prolong life.

Under the second class of therapists, I would place the theorists. The great majority of us practise under this head. The theorists treat symptoms or the disease, not the individual. He looks upon a disease or even a symptom alone as an entity, which is to be cast out by medication, as devils and evil spirits were in past ages cast out by incantation. He is an extremist, as much so as the nihilist. He looks for specific effects from drugs. Fever from all causes he fights with antipyretics and is happy if the temperature is lowered by the drugs used regardless of the natural course of the disease. Cough, whether of bronchial, of cardiac or of nervous origin, is combated because it is a cough and by similar remedies in all cases.

A chill calls for quinine, whether due to pyogenic cocci, malarial plasmodia, or what not. Anemia calls for iron, whether it be due to malignant disease, faulty hygiene or an unknown cause. This is the therapy of not only our own practitioners, but also that of the physicians we are pleased to term "irregulars." These we hold up to ridicule because of the dogmas they maintain of the specific application of certain remedies to symptoms.

Furthermore, many of the books on materia medica and therapeutics are so arranged that after the exposition of the forms, preparations and physiological action of a drug, there follows a list of the various symptoms and diseases in which it may be used advisedly. This form of practice is still further stimulated in the present day by the elegant, palatable and sightly preparations which the manufacturing pharmacist presents to the practitioner.

In the commercial world the supply follows the demand of a commodity. To the busy country physician, who must often compound his own prescriptions, the preparations of the manufacturing pharmacist were a boon. For this aid, and for the presentation of simple preparations in a presentable form, must we acknowledge thanks. But the manufacturing pharmacist ceases to be our helper when he attempts to present preparations in an elegant form when by so doing he renders them inert. Of what value are most of the tinctures and fluid-extracts in the form of tablet triturates? And if bad in simple form, how much worse if presented as a compound of two or more fluid preparations in a tablet, even if labeled the favorite prescription of some eminent practitioner as a "heart tonic," "laxative," "antidyspeptic," "antipyretic," etc., etc. What, too, of the syrups, elixirs, pills and mixtures with copyrighted names which are presented as specific "cure-alls"?

The pharmacist assumes when he presents to us these compounds, which for all practical purposes are patented, that we do not know enough to prescribe. Yes, he even says we are not able to diagnose a disease, for upon the label is often printed the symptoms for which the compound is a specific.

Let us give credit for all that the manufacturing pharmacist has done for us. We want elegant, sightly, palatable preparations. Let him give them to us, but let it be in forms which will not lessen the virtue of the drug and in simple not compound preparations.

I would name the third class of therapists rationalists. The practice of rational therapy is based upon a thorough knowledge of disease. This includes a knowledge of the pathology, the morbid anatomy, the clinical course and the recognition of the disease by means of all the modern methods and means of diagnosis. Experience is necessary to make a rational therapist. One must have the opportunities to observe the natural course of disease. Books will not afford this. Hospitals give one the best opportunities, but in private practice, in both the country and city, abundant material is at hand to study the natural development and course of disease.

He will make the best therapist who will use the means at his command to recognize the usual and unusual phenomena of disease. In addition to the organs which Nature has given him, the physician has at his command, at comparatively little cost, the modern instruments of precision in diagnosis which may enable him to become very proficient in the recognition of disease processes.

The knowledge thus obtained grows very rapidly and it is true, I believe, that the degree of acquaintance with disease bears an inverse ratio to the use of drugs. A knowledge of pathology and of morbid anatomy must teach one to use drugs sparingly and rationally. With a mental

picture before one of the morbid anatomy of a given disease, the rationalist does not attempt the frequently-impossible removal of the disease, but does try to modify the future development of the process and the results of the disease upon the other important organs of the body.

In surgery, cleanliness has made operations possible upon almost every organ of the body. For years the surgeon used the so-called antiseptic drugs in an attempt to secure freedom from infection in operative wounds. It required a long period of time to teach the surgeon that drugs were not necessary and that true cleanliness meant the use of pure water as an agent to purify operative fields, instruments and dressings. In midwifery, too, the former horrors of childbed have been removed by cleanliness. So true is this in both surgery and obstetrics that infection after operation or childbirth is looked upon as a grave blunder of operator, assistant or nurse in the matter of cleanliness.

In medicine cleanliness is just as important as in surgery. Just now the majority of us do not pay so much attention to it as we should. Medical cleanliness may be obtained, as in surgery, by the use of pure water as a drink, by the various forms of baths, antiseptic-mouth and throat-washes, lavage of the stomach, colonic flushes, etc. These measures of cleanliness not only lessen the element of external and internal infection, but also modify the results of the infection or the intoxication from which the patient suffers in consequence of some general infection or organic, chronic disease. Cleanliness should extend, too, to supplying the patient with pure air and uncontaminated, unadulterated food. These hygienic measures may not be classed with drug-therapy, but if practised will have a definite relation to the use of drugs, inasmuch as it will be found less necessary to prescribe drugs when medical cleanliness is practised. The drugs which the rationalist will use in this event will be directed to an attempt to meet emergencies when they arise in the course of the acute infections, or with the object of forestalling a possible accident, which his experience of the clinical course of disease has taught him may occur. He knows that there is no drug which will shorten the course of the infectious disease, with the exception of quinine in malaria and mercury in syphilis. This does not apply, of course, to the few specific sera. Unhappily, these are still few in number. The principle of the antitoxin treatment has been firmly established, and it is reasonable to hope that we may at no distant day command a specific treatment for all the acute infectious diseases, as we now do in diphtheria, the plague, tetanus, the intoxication due to the bites of venomous serpents, and probably also cholera and epidemic dysentery.

In the local and chronic diseases rational therapy applies as in the acute infectious processes. Here a thorough knowledge of the morbid anatomy of the clinical course and of the interaction of organs and parts of the body is absolutely essential to a rational therapy. Take, for example, a case of chronic interstitial nephritis. The treatment should be based upon the cardio-vascular integrity, upon the total urinary excretion, and upon the nutritional condition of the patient. Empiricism has taught us to use, in this form of chronic nephritis, digitalis, iron and some form of saline diuretic like acetate of potassium. These drugs are often united in a mixture and too often does the unthinking physician prescribe them when the diagnosis is established.

The rationalist would study the cardio-vascular system, the urinary output, and the nutrition of the patient.

If the balance were good he would not prescribe drugs, but would establish a hygiene in the form of diet, water as a diluent drink, proper clothing, and general conduct of life which would tend to maintain this balance of proper integrity of heart, urinary excretion and bodily nutrition.

If drugs were subsequently necessary he would give only such as were necessary to reëstablish the proper balance. Perhaps digitalis would be necessary at one time. Iron, too, perhaps should anemia occur, or, if not iron, some other hematinic, and, if water was not sufficient, perhaps a medicinal diuretic would be prescribed.

Thus the rationalist treats the individual and not the disease.

Nihilistic therapy is not justified by the experience of the past nor by present knowledge in either private or hospital practice. Nihilistic therapy and the symptomatic drug-treatment of the theorist are opposite extremes of practice. Both are wrong and both are supported by ignorance—a want of knowledge of a different kind, it is true.

Clearly, there is a marked limitation in drug-therapy, but still there is a drug-treatment which, if rationally applied, will be of much aid to the physician in combating disease and in alleviating human sufferings.

A HISTORY OF THE ARMY POST EXCHANGE OR CANTEEN.

BY DUNNING S. WILSON, M.D., PH.D.,
OF LOUISVILLE, KY.

The Army Post Exchange began its history in 1883 as an experiment at Vancouver Barracks by Col. Morrow, and its gradual adoption (1889-1891) throughout the Army has been the work and study of years.

Regulations governing the Canteen had been issued from time to time as arising circumstances required, until a thoroughly practical basis had been reached which was conceded by the vast majority of Army officers to be conducive toward the maintenance of law and order in the regiments. We see that the adoption of the Army Post Exchange was a matter of growth and came about only after careful investigation by men interested in the welfare of the Army. In 1895 the Exchange Regulations were clear and unmistakable in their interpretation and none, who read

conservatively, can claim that it was a promulgator of lawlessness.

It is evident from the above data that the Canteen has existed for over fifteen years, being tried for five years or more prior to its official recognition in 1889, and evidence, backed by statistics, goes to show that drunkenness, alcoholism and desertions have slowly but surely decreased and that the Army Post Exchange has been the most potent factor in bringing about this happy result.

At the Fifty-fifth Congress a bill was introduced with a view to abolishing the Canteen, but, owing to faulty construction, it did not accomplish its object. In this connection I would like to refer to the action of the Committee on Temperance of the Methodist-Episcopal General Conference in session at Chicago, May, 1900, which reported resolutions censuring President McKinley for accepting and acting upon the decision of Attorney-General Griggs that the anti-canteen law as passed by the Fifty-fifth Congress did not prohibit the sale of liquors. It is unnecessary to defend General Griggs for his opinion and, had the Temperance Committee carefully read and digested the Attorney-General's decision as given to the Secretary of War, they would scarcely have taken it upon themselves to attack the action of the President; as it was they only succeeded in making a display of ignorance in regard to legal opinions. General Grigg's decision as presented to the Secretary of War is a masterpiece of clearness and he carefully gives his reasons with the directness of a great legal mind.

The agitation of the Canteen question prompted the Secretary of War to send a circular letter to the commanding officer of every troop, battery, company and regiment, and under date of May 2, 1899, a similar letter to over five hundred of the oldest non-commissioned officers.

Following is a copy of the letter:

"HEADQUARTERS OF THE ARMY.
"ADJUTANT-GENERAL'S OFFICE,
"WASHINGTON, May 2d, 1899.

"SIR: The recent legislation (Section 17 of the Act approved March 2, 1899) in the matter of the sale of liquors by Post Exchange and the interpretation thereof by the Attorney-General (General Orders No. 69, 1899), together with what cannot be regarded as other than an abuse of the privileges accorded by the Exchange Regulations by certain undisciplined organizations during the recent war with Spain, have caused considerable criticism of the Exchange feature of the Army administration.

"With a view to a proper understanding of the situation the Secretary of War desires that commanding officers of every troop, battery, company and regiment in your command be called upon for a report based upon his experience and observation as regards the benefit or injury to the Army in point of temperance, morality and discipline as a result of the Exchange system and particularly as to the sale of beer.

"It has been publicly asserted by the opponents of the Exchange system that officers of the Army are restrained from expressing their true opinion on the subject by reason of the belief that the War Department has determined to maintain the Exchange in spite of opposition. The Secretary desires that such an impression be at once dispelled. In these reports, so long as they do not violate good taste and official decorum, the utmost latitude of opinion is invited in order that the Secretary may be in a position to place before Congress at the next session a correct report of the merits and defects of the Exchange system as seen by those best qualified to judge.

"In order that the replies to these inquiries may be as uniform as possible they will be made upon the accompanying form, a supply of which has been sent you under separate cover for distribution.

"H. C. Corbin,
"Adjutant-General."

To the question "So far as your observation has gone, have desertions increased or lessened since its introduction?" 345 commissioned officers and 394 non-commissioned officers (739) have replied that desertions have decreased; 4 commissioned officers and 2 non-commissioned officers (6) that they have increased; 31 commissioned officers and 18 non-commissioned officers (49) that its effect on desertions is doubtful; 79 commissioned officers and 37 non-commissioned officers (116) that it has had no effect and 123 commissioned officers and 32 non-commissioned officers (155) that they are unable to state.

To the question "Has drunkenness increased or lessened since the introduction of the Canteen feature of the exchange system?" 480 commissioned officers and 429 non-commissioned officers (909) have replied that it has decreased; 9 commissioned officers and 11 non-commissioned officers (20) that it has increased; 16 commissioned officers and 17 non-commissioned officers (33) that there is no difference and 77 commissioned officers and 26 non-commissioned officers (103) that they do not know.

To the question "In your opinion does the opportunity to procure beer at the Post or in camp have any effect upon the efforts of enlisted men to procure intoxicants outside?" 551 commissioned officers and 18 non-commissioned officers cers (980) have replied that it lessens such efforts; 6 commissioned officers and 5 non-commissioned officers (11) that it increases; 18 commissioned officers and 43 non-commissioned officers (61) that it does not have any effect and 7 commissioned officers and 6 non-commissioned officers (13) that they do not know.

To the question "What in your opinion would be the effect of an absolute prohibition of the sale of beer in the Army?" and to the question "Are you in favor of such prohibition or are you in favor of the Exchange as conducted at present and with a view to its continual improvement along the same lines?" 517 commissioned officers and 464 non-commissioned officers (981) have replied in favor of the Canteen; 17 commissioned officers and 19 non-commissioned officers (36) in favor of absolute prohibition and 3 commissioned officers doubtful. These latter questions contain the gist of the inquiry.

On February 20, 1900, Mr. Bowersock, of Kansas, introduced the following bill which was placed in the hands of the Commitee on Military Affairs for a report:

A Bill

To prevent the selling of, or dealing in, beer, wine or any intoxicating drinks in any Post Exchange or Canteen or transport or upon any premises used for military purposes by the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the sale of or dealing in beer, wine, or any intoxicating drinks as a beverage by any person in any post exchange, or canteen, or transport, or upon any premises used for military purposes by the United States, is hereby prohibited.

Sec. 2. That the penalty of any violation of this Act shall be not less than one hundred dollars and not more than five hundred dollars for each offense.

The committee submitted the following report:

"The Committee on Military Affairs to whom was referred House Bill No. 8752 report the same back to the House with the recommendation that it do pass with the following amendments:

"Amend lines 5 and 6 by striking out the words 'for military purposes' and insert in lieu thereof the words 'or owned.'

"Amend the title by striking out the words 'for military purposes' and inserting the words 'or controlled.'

"The bill was referred to the War Department and a very *voluminous report* was returned to the Committee *against the passage of the bill,* but the Committee believes that in view of the *legislation of the last Congress* when it was intended to abolish the Canteen, but, on account of faulty language did not accomplish it, the *present bill should pass.* The expressions received from all parts of the United States go to the point that *even if the Canteen results in the decreased consumption of liquor by the Army, the United States Government should not in any sense be connected with the liquor traffic,* but let private parties conduct it under the laws of the different States.

"The Committee further believes that, if the Government should not permit the *selling of liquor in military reservations,* that it *should prohibit it in any other premises* owned or controlled by the Government of the United States and with the amendments suggested in the report that the bill do pass."

At a casual glance from those unfamiliar with the subject the report appears very consistent, but upon close scrutiny by any one acquainted with the facts it presents a series of inconsistencies. In order to comprehend more clearly these inconsistencies I would call attention to the words which are in italics.

From the first sentence we are led to believe that the Fifty-sixth Congress was endeavoring to blindly follow the lead of the Fifty-fifth Congress, and, despite the greater facilities for judging and in the face of a "very voluminous report against the passage of the bill," the Committee recommended its adoption.

We judge from the second statement that though drunkenness, alcoholism, desertions, and indirectly certain diseases are lessened, yet the Government should do nothing toward relieving this distressing state of affair. The Government is in no sense in the "liquor traffic," nor does it do more than inspect and control the Canteen in *practically* the same way as revenue officers regulate the sale of liquor throughout the United States.

The *soldiers* who have the rights of citizens *incur the expense* and they reap the benefit morally, physically, and financially. It seems hardly consistent, as the third paragraph states, to hold that the same rule governing military reservations should govern soldiers. They have certain rights of private citizens and *by virtue* of their *own volition* are serving as *protectors* of the *Government* instead, as are the Indians on some of our reservations, awaiting a favorable opportunity to give trouble to Uncle Sam.

It is a curious, but no less significant fact, that in all the discussion and in the report of the hearings before Congress, both in the House and Senate, there is given the direct testimony of only a single medical officer (Dr. Munson) and only one or two others are quoted. It seems a piece of great negligence to thus ignore the evidence of men who by the very nature of their profession are in a position to elucidate the subject and whose testimony should have greatest weight in passing on this momentous question.

The Association of Military Surgeons at their tenth annual meeting (St. Paul, May 30-June 1, 1901) after hearing and discussing Major Seaman's masterly article, entitled "Observations in China and the Tropics on the Army Ration and the Post Exchange or Canteen," unanimously passed the following resolution:

"*Whereas,* The Association of Military Surgeons of the United States now in session at St. Paul recognizes that the abolition of the Army Post Exchange or Canteen has resulted, and must inevitably result, in an increase of intemperance, insubordination, discontent, desertion and disease in the army, therefore be it

"*Resolved,* That this body deplores the action of Congress in abolishing the said Post Exchange or Canteen and in the interest of sanitation, morality, and discipline recommends its reestablishment at the earliest possible date."

I wish that every one who has not read Major Seaman's article and the discussion following would do so and thereby receive great enlightenment on so important a question.

I quote from some of the gentlemen who discussed this paper in order that we might reach a more thorough understanding of the matter. Colonel W. W. Grant of Colorado: "I hope everybody will discuss this paper. Congressmen do not expect to receive as much support from medical men as they do from others. If medical men would agitate this matter, if they were determined

and united in their demands on their Congressmen, they could accomplish for themselves, the welfare of the country and the sanitary conditions of the Army much more than they have yet accomplished. I do not think it worth while to say that women should not take an interest in this matter. They have the welfare of the Army and the best citizenship at heart. I think the underlying principles of the W. C. T. U. are based on the very best motives.

"I do believe if that organization is approached properly, and there is no organization in the country that public men and women respect more, they can be convinced that a mistake has been made; and that by united action we can show public men and public officials that we have influence."

Colonel R. H. Reed, of Wyoming: "It is unfortunate that we have a class of people in this country who are theorists. The class represented by the W. C. T. U. are doing a good work in their sphere, but they have no business to meddle with things that do not belong to them; they have gotten out of their sphere and have meddled in the laws of the United States in doing so."

Brigadier-General F. W. Byers, of Wisconsin: "The good women meant to do some good, but they went after it in the wrong way, and I think however much a Congressman may want to do his duty he usually counts the votes behind every measure that comes up. I do not like politics in the Army, I do not like politics in anything military, but there is politics in this, and we have got to give the authorities at Washington to understand that we have votes behind us as well as the W. C. T. U."

Lieutenant-Colonel J. D. Griffith, of Missouri: "If this Association can only convince Congress that it has taken a wrong step in that direction, it means everything to our Army—not only to the regular Army but to the volunteer, and let me say right here that the volunteer in the United States to-day is the bulwark of the Government. When this thing comes to a test the Canteen will come again. It is our duty to bring it forward and we must have it. It is a necessity; it may be a necessary evil, but we have them all over the land. We must have the Canteen."

Major T. C. Clark, of Minnesota: "Now I would be the last person in the world to question the motive of the women of the W. C. T. U. We all know that the instinct of women is always on the side of right. We may question her logic; we may accuse her of jumping at conclusions; we may question her wisdom as a legislator, but we must always give her credit for having a high motive and a pure instinct in combating that which she thinks is wrong. Consequently any action we may take here should be dignified, and we should try to make it as effective in that way as possible and I think the action of this association as embodied in this resolution, forwarded to members of Congress and spread broadcast throughout the country cannot fail to have its effect. The opinion of a body of medical men directly interested in this question should appeal to every thinking person, and if there are any members who hold views contrary to this resolution I hope they will speak them, because to my mind the sentiment of this Association should be unanimous and it ought to go a long way."

Major Geo. Halley, of Missouri: "I think the greatest mistake made has been the advocacy of total abstinence by legislation; that stand has been a mistaken one, and it is a mistake, not with reference to the temperance question alone, but with reference to a very large amount of effort that is made to place on the statute books laws to make morals. They may be right enough, I have no reason to doubt the wisdom of some of them, but on this particular question, dealing with temperance, it is unwise, it is fatal; it is absolutely impossible to stop men drinking. They have got into that habit and the best that can be done is to try to regulate it."

Major Allen A. Wesley, of Illinois: "I desire to state that the opinion of the medical officers of the United States Army is unanimous on this question, that is, if the press reports of Chicago are correct. The press is the educator of the people, and if the press does right and says that this Association demands the repeal of this law, Congress will take notice of it. I think, as has been stated, that we can also enlist on our side the W. C. T. U., and we can do that through the press and individually."

Lieutenant-Colonel Jno. Van R. Hoff, of the United States Army: "There is no question that the Post Exchange has its value. Its value is apparent to us; we know what it means; we know how good it is for our soldiers; we know how they promise temperance—and I distinguish between temperance and teetotalism. We all know that the soldier is just the same as the citizen, except that he wears a uniform. He has the same tastes, the same inclination, the same pulse under the blue as he has in the performance of his daily vocations as a citizen."

Brigadier-General George Cook, of New Hampshire: "I am in favor of the resolution as submitted by Maj. Seaman and I am also in favor of sending it to every Congressman and to every association of the W. C. T. U., whom I believe we should deal with kindly and generously and not call anything they have done by a harder term than to say they were misguided; then we can accomplish something."

It would be undignified and dishonorable to accuse the men above quoted as having any but the best motives at heart and no one can truthfully say that they are influenced by any ulterior designs. These men are medical officers with large experience and whose positions are such as to relieve them from the attack of personalities.

When the American Medical Association met in St. Paul (1901) the resolutions passed by the Association of Military Surgeons were presented before that body and referred to the Committee on National Legislation, whose report as here given was adopted on motion of Dr. Lewis of Chicago.

"Your Committee on National Legislation, to whom was referred the following resolutions from the National Association of Military Surgeons, presented to your honorable body by Major Louis L. Seaman, U. S. V.:

"*Resolved,* That this body deplores the action of Congress in abolishing the Army Post Exchange or Canteen, and, in the interest of discipline, morality, and sanitation, recommends its re-establishment at the earliest possible date.

"We have carefully considered the resolution proposed and declare it to be wise, proper, and of importance to every citizen of this republic.

"The resolution is the outgrowth of careful study and observation by the medical department of the United States Army, it is concurred in by the commanding officers at the several posts, and is intended to correct serious abuses under the present law which result in drunkenness, desertion, insubordination, dishonorable discharge, crime, poverty, appalling increase in venereal disease, and invalidism among the soldiers of the United States Army.

"We find that the experience of foreign governments coincides with that of the National Association of Military Surgeons in the necessity for the Army Post Exchange or Canteen.

"We recommend that the American Medical Association adopt the resolution proposed and that you petition the Congress of the United States to repeal, at the earliest moment, the objectionable law which prohibits the Army Post Exchange.

"Respectfully submitted,
"H. L. E. Johnson,
"Chairman Committee on National Legislation."

The American Medical Association has been accused of passing the resolution in an unparliamentary manner, the accusation being that the "ayes were called for, but not the noes."

In order to find out the truth of the statement I wrote to Dr. John A. Wyeth, President of the Association, and received the following letter:

"New York, September 16, 1901.

"Dear Doctor: I have your letter of September 13th. I have not seen the controversy in the Medical News. I was present at the meeting when the question of the Canteen was voted upon at St. Paul. It is my recollection that a very decided majority of the members present voted in favor of the result, and that when it was declared carried by the President it was fairly carried. Under the circumstances (I have to preside at the next meeting when the question is to be brought up), I scarcely think it would be appropriate for me to express an opinion, but will leave the matter in abeyance until I see you at the Saratoga meeting next June. I sincerely hope you may come, and that what I have written may be satisfactory to you for the purpose you have in view.

"Sincerely yours,
"John A. Wyeth."

I wrote the Surgeon-General as to his views of the Canteen and he kindly answered in the following manner:

"Washington, Oct. 12, 1901.

"Dear Sir: In reply to your communication of September 12th, I am directed by the Surgeon-General to send you the enclosed extract from his annual report for the year ended June 30, 1901, shortly to be published.

"The Surgeon-General has watched the progress in the decline of the prevalence of alcoholism with much satisfaction, and reported on it in each of his reports. I send you a copy of the report for 1896 in which on pages 84-88 and in Tables XII. and XVI. you will see the manner in which this record has been kept.

"Very respectfully,
"C. Smart,
"Assistant Surgeon-General, U. S. Army."

[Extract.]

"The steady decrease of late years in the admissions for alcoholism among the men of the regular army is a matter for congratulation. Military officers may be said to be unanimous in their opinion that this was mainly the result of the establishment of the Post Exchange or Canteen at military posts. The following shows this gradual improvement. Mean annual admission rate of the decade ending with 1889, 56.68 per thousand of strength. Admission rate for 1889, 41.44; for 1890, 40.73; for 1891, 40.01; for 1892, 37.23; for 1893, 33.97; for 1894, 30.94; for 1895, 30.11; for 1896, 29.06 and for 1897, 27.86. In 1898 the altered conditions consequent on the Spanish-American war prevented further comparisons. There is less drunkenness among troops in active service than in a command doing garrison duty in a time of peace."

Major James Evelyn Pilcher, Brigade Surgeon, U. S. V., Capt. (Retired), U. S A., at my request to furnish me with a copy of the *Journal of Military Surgeons* and to give me his views on the Canteen sent me the following letter:

"Carlisle, Penn., October 23, 1901.

"Dear Doctor: I will have pleasure in sending you a copy of the next number of the *Journal,* containing Major Seaman's article and the discussion upon it.

"So far as my personal opinions on the subject are concerned, I have no objection to your using my name if you desire, but I fancy it would hardly be worth while, as my opinion is simply that of the vast majority of medical officers who have had much experience with troops, viz., that while by no means free from evil qualities, the benefit to the men and the service enormously surpasses the disadvantages of the Canteen.

"Trusting that your article will be powerfully effective in propagating a correct view of the subject, I remain,

"Very sincerely yours,
"James Evelyn Pilcher."

Lieutenant-General Miles, in his latest report to the Secretary of War, in speaking of the prohibition of the sale of intoxicating beverages in the Canteen, says, "It is believed that no injury has resulted thereby and that the law has in the main been beneficial."

Such a statement from the Commanding General of the Army must have some weight, but consideration must also be given to the opinions of the Inspectors-General in their report which accompanies that of General Miles.

Colonel Burton (Cuba) says, "The officers generally complain that the elimination of beer from the Exchange has worked a hardship on the soldiers and has been detrimental to good order and military discipline."

Lieutenant-Colonel Reade (Dakota) says, "It is the consensus of opinion that the Exchange, with the Canteen feature, promotes the morals, temperance, discipline, and health of the men. Further, that in the interest of effective services and morality the Canteen should be reëstablished as a section of the post Exchange. It is better for men to drink beer on a military reservation, where they can be cared for, than to drink alcoholic liquor off of it. The recommendation previously made by me is renewed—that, whenever practicable, post or regimental chaplains be placed in charge of the Post Exchange."

Major Sharpe (Colorado) says, "Observation made during the past year, both in the Tropics and at the various posts in this Department, strongly confirms the opinion expressed by me in former reports that the legislature of last winter abolishing the canteen was ill advised. If there is no authorized and decently kept place of resort within a garrison where the soldier can find recreation suited to his tastes and station in life, he will seek it outside, and the innumerable brothels and whisky dens which are springing up on the edge of the reservations will prove the most baleful and destructive enemy to contentment and good order with which a garrison can be cursed."

Major George M. Dunn, Judge-Advocate, Department of Cuba, in discussing the abolition of the Canteen, says, "During November, December, and January, 1900, with the Canteen, there were 139 convictions for drunkenness, and during the months of March, April, and May, 1901, the Canteen having been abolished, there were 275 convictions for drunkenness, or nearly twice as many, due to the abolition of the Canteen."

I have given these reports, letters, resolutions, and discussions in order that a correct and impartial verdict may be reached and I have endeavored to be as moderate as possible.

After patient effort covering a few months I have accumulated a mass of evidence in favor of the Canteen which, were it all published, would constitute a volume of itself, but I have tried to give that which practically expresses the sentiments of all.

I have talked with men and women of integrity and knowledge in my native town, workers in the Y. M. C. A., Sabbath school teachers, and have by every available means sought to get the expressions of the most conservative.

While we can readily appreciate that others may sincerely differ in their opinion from us yet the fact remains that the medical and military officers of the Army are without doubt in a position to judge most clearly of the benefits and evils of the Canteen.

I have been surprised in this connection at the ignorance of several intelligent persons of my acquaintance regarding the name "Canteen," they having been, heretofore, under the impression that the canteen was a liquor flask issued by the Government and worn by the soldier in camp and out of it. I am free to confess that for some time I was under the same false impression. These remarks are made only that we may in some slight manner appreciate the ignorance of the general public on such questions and how blindly it follows the leader without "rhyme or reason."

In closing I wish to thank the many Senators, Congressmen, and Government officials, and many others, who have rendered me great assistance in a most prompt, courteous and obliging manner.

THE ROENTGEN METHOD IN THE DIAGNOSIS OF RENAL AND URETERAL CALCULI.[1]

BY CHARLES LESTER LEONARD, A.M., M.D.,
OF PHILADELPHIA.

THROUGH the adaptation of the discoveries of pure science, the art of medicine and surgery is becoming an applied science. The discovery that has probably exerted the greatest influence is that of the lens and its adaptation in the microscope. Roentgen's discovery is almost as fundamental. We cannot see into the future or estimate whether its influence will be as widespread. It already forms the basis for a new and valuable method of diagnosis and has also given rise to a new therapeusis. Whether the Roentgen rays are the therapeutic agent, or, as it will probably be proved, only another method of employing electricity, the discovery by Roentgen is responsible for its introduction.

The application of this method of diagnosis is gradually extending, as the technic essential to its employment in various fields of diagnosis is developed. In many cases it has become the most accurate method of diagnosis, and its accuracy has often shown the errors and defects of older methods. It cannot, however, be insisted upon too frequently that it is essentially a method of diagnosis, and that, as such, it should be used by professional men only. The diagnostician must possess professional knowledge, special technic and clinical experience with this method.

The advance made in the diagnosis of calculous conditions of the kidneys and ureters by the employment of this method illustrates its pos-

[1] Read before the Society of Alumni of Bellevue Hospital, Nov. 8, 1901.

sibilities in other fields, and the effect which it has had upon the methods of operating and treatment in these cases demonstrates its value.

In suspected renal lithiasis, when the typical symptoms are wanting or confused, a differentiation from diseases of neighboring organs is often impossible by the older methods. On the other hand, a calculus may be present and yet the absence of certain symptoms may produce a symptom-complex that points to disease of a neighboring organ. Thus, in one case in which the diagnosis lay between ureteral calculus, chronic ovarian disease and appendicitis, the Roentgen examination excluded calculus and the operation freed a chronically inflamed ovary bound down by dense adhesions. In another case that had baffled a number of clinicians by the indefiniteness of the other symptoms and the persistent character of the pain, the skiagraph showed six phleboliths which the operation proved were in a varicocele of the broad ligament. On the other hand, in a case that had been diagnosed "nervous dyspepsia," the colic and gastric crises were found to have been caused by a calculus impacted in the ureter; its position also explained the absence of pathological elements in the urine at the time of the attacks, as it produced a unilateral anuria.

The differentiation between renal lithiasis and other forms of nephritic disease is often even more difficult. A small calculus in the kidney may give rise to symptoms identical with those of incipient, malignant or tuberculous disease. The unrecognized presence of a small calculus in the calyces or pelvis of the kidney or in the ureter is, however, a menace to its integrity and functional activity. These small calculi often block the ureter and cause anuria and the destruction of the kidney. The Roentgen method of diagnosis has shown that these calculi in their passage through the ureter give rise to "renal colic" more frequently than do calculi in the calyces or pelvis of the kidney. More than sixty per cent. of the calculi detected by the author have been found in some portion of the ureter.

The recognition of this larger portion of ureteral calculi points, however, to the facility with which they can pass through the urinary tract without, in the majority of cases, producing severe symptoms. Undoubtedly many more are passed than are brought to the attention of the surgeon. In the inability to recognize and locate the seat of obstruction lies the gravest source of danger. Now, that these calculi can be found and their size and position determined, the gravity of the situation is decreased; conservative surgery[1] can rationally wait for Nature to expel them, or, if necessary, immediate operation can be directed to the exact seat of the lesion.

The value of this method is easily realized in cases of complete obstructive anuria. The recognition of the calculus as the obstruction directs operation to it and prevents operation upon the wrong kidney. In unilateral anuria, when an unrecognized calculus completely obstructs the ureter, all urgent symptoms subside and the patient believes that the trouble is over. Unless a calculus is passed and recognized, the subsidence of symptoms should be construed as an indication of grave danger. The integrity and functional life of the kidney are threatened. If the patient has not been examined by the Roentgen method, it should be done immediately. If a calculus is found and a cystoscopic examination shows the absence of urinary flow from the affected side, immediate operation is indicated. If, however, urine is passing, and the skiagraph shows the calculus to be of a size that can be expelled, the operation can be postponed. Post-mortem examinations have shown how frequently the destruction of a kidney takes place after calculous anuria has terminated its functional activity.

Temporary unilateral anuria can be produced by calculus impaction, twists of the ureter, valvular formations and shifting or movable kidneys. The similarity in symptomatology is often such that the passage of the ureteral calculus cannot be differentiated from the other conditions, except by the Roentgen method.

These lesions have been frequently found in operations upon cases suspected of having calculi in which a negative diagnosis as to calculus had been rendered after the skiagraphic examination.

Calculi in the ureter just outside the bladder may give rise to symptoms that simulate vesical stone, the irritation of the vesical trigone causing, among other symptoms, a referred pain in the glans penis. In a case which illustrated this very clearly the patient had been operated upon and searched for an encysted vesical calculus. The Roentgen examination showed four small calculi impacted in the lower portion of the ureter. Two of them were afterward passed and the others broke down and were removed from the bladder in the form of coarse gravel.

The symptoms are frequently so indefinite, even when a large calculus is present in the calyces or pelvis of the kidney, as to render an absolute diagnosis impossible except by exploratory operation or the Roentgen method. In one case the presence of a calculus in a large pyonephritic kidney was suspected; the skiagraph showed no calculus and an operation confirmed that diagnosis. In another case a branched calculus, one and one-half inches in length, was found in a patient whose only symptoms had been a slight albuminuria and a continued dull ache in the lumbar region. This patient had consulted a number of clinicians, only one of whom had advised exploratory operation. In a similar case, which had, however, a history of having passed blood ten years previously, a small calculus weighing thirteen grains was found and removed. The urine was normal except for a trace of albumin and an occasional pus-cell.

As an effect of the more accurate knowledge

[1] Amer. Medicine and Jour. Amer. Med. Assoc., Nov. 30, 1901.

obtained by this method of diagnosis, an alteration has taken place in the indications and methods of operation. The determination of the exact location, the size, and number of the calculi present, renders rational a conservative expectant line of treatment which, without this accurate knowledge, would have been extremely hazardous. With this knowledge, in cases in which the calculus is found to be of a size that will probably pass, if there is no anuria present, delay under careful supervision is more rational and less dangerous than operation. The Roentgen method is the only means of differentiating between those cases that demand immediate operation and those in which medical or expectant treatment is justifiable. The value of this differentiation has been proved in nine cases in which delay has been advised as a result of the Roentgen examination, and the calculus has subsequently been passed.

The accurate determination of the position and number of the calculi has resulted in limiting the field of operation, and in rendering the intervention more accurate and complete, while it excludes the danger that menaced from the unrecognized involvement of the other kidney or ureter in the calculous disease. It is no longer necessary to perform an exploratory nephrotomy upon the healthy kidney before doing a nephrectomy, or to open a healthy kidney in the search for a calculus that is obstructing the ureter lower down. Incision into the kidney, during an exploratory or any other operation, is only justified by the detection of a calculus by the Roentgen method or an obvious pathological lesion.

A calculus in the ureter can be removed by a direct ureterolithotomy, and the pyo- or hydronephrosis can be cured without direct operation upon the kidney. The failure to detect a calculus in the ureter during a nephrolithotomy has frequently led to the formation of a urinary fistula. Two cases of this character have recently been referred to the author for examination. In both calculi were found the ureter. The presence of multiple calculi in ten cases that have been referred to him for diagnosis renders this procedure an essential to a complete examination. In four of these cases calculi were found in both kidneys after one calculus had been removed at a previous operation.

The accuracy of the negative diagnosis renders it unnecessary to incise the kidneys or ureter in the search for calculi. It renders safe and rational the treatment of renal disease by purely medical measures, when the symptomatology does not point to some cause other than calculus that demands operative intervention. An operation, with its attendant risks, that would otherwise have been essential to the safety of the patient and the integrity of the kidney, is often obviated. It eliminates calculus anuria from consideration, and any operation upon one kidney is free from the danger that the other is the seat of calculous disease. In cases demanding a nephrorrhaphy there is no longer need to search for calculi. The kidney does not need to be opened in the search for a calculus that is in the ureter, or for others when those demonstrated have been removed.

These effects upon diagnosis and treatment, as the result of the employment of the Roentgen method of diagnosis, have been observed in the study of the 206 cases suspected of renal calculus that have been referred to the author for examination. Calculi have been found in 65 cases and in over 60 per cent. they were in the ureter. In only three cases in which a negative diagnosis has been rendered has it been found incorrect. In one case, already reported, the error was due to faulty technic. In the other two cases calculi, weighing less than one grain each, were overlooked and subsequently passed. Other calculi as small have frequently been detected.

The chance of error in the negative diagnosis is, therefore, very slight, and the calculi that may be overlooked are so small that their final expulsion is certain. There are as yet patients in whom it is impossible to make an absolute negative diagnosis on account of their size. In suitable cases hydronephrotic and displaced kidneys have been demonstrated; while calculi have been detected in patients weighing over 200 pounds. In such cases when great detail is demanded in the skiagraph or the difficulties to be overcome are out of the ordinary, it is sometimes necessary to make repeated exposures before a satisfactory result is obtained. When, however, such a result is obtained, it enables the diagnostician to demonstrate the accuracy of his results to those capable of appreciation.

1930 Chestnut Street.

RETINAL LESIONS OF CHRONIC INTERSTITIAL NEPHRITIS.[1]

BY EDWARD JACKSON, A.M., M.D.,
OF DENVER, COLO.

The extremely intimate connection between chronic Bright's disease and certain general degenerative changes in the walls of the blood-vessels is universally recognized. But the true relation between these local renal changes and the general vascular alteration is so imperfectly understood that it is still entirely uncertain which stands in the chain of connection nearer to cause and which nearer to effect, or if both may not arise on parallel lines from common causes as yet unappreciated. The local changes have, by postmortem study and by clinical observation of the urine, been fairly well worked out. But the general vascular degeneration, although its effects on blood-pressure have claimed attention and have been the basis of much fine theorizing, is still extremely obscure. Enough observations have been made upon them to demonstrate that the blood-vessels directly visible within the eye participate fully in the general vascular

[1] Read before the Rocky Mountain Interstate Medical Association, Sept. 3, 1901.

changes. These changes have been thus observed accidentally or incidentally from time to time; but no sufficiently thorough study of them has been made to give any definite idea of the full possibilities of investigation along this line.

Of the general value of the ophthalmoscope, Loring truly said, "With it, it is like walking into Nature's laboratory and 'seeing the infinite in action,' since by its means we are enabled to look upon the only nerve in the whole body which can ever lie open to our inspection under physiological conditions, and to follow in a transparent membrane an isolated circulation from its entrance into the eye through the arteries to its exit in the veins." It is to be regretted that so few physicians especially interested in renal and vascular disease have entered Nature's laboratory through the open door of the ophthalmoscope. Ignorance of the facts of the case seems the most reasonable explanation for the common failure to understand the absolute and relative importance of the retinal lesions of chronic interstitial nephritis.

These lesions include: (1) Alterations in the contour, size, and color of the retinal vessels; (2) hemorrhages and the progressively changing exudates which constitute steps in the removal of effused blood; (3) retinal edema; (4) degenerative changes in the neural elements of the retina and alterations in the layer of pigment epithelium; (5) deposits of exudate which perhaps have a significance somewhat different from that of the foregoing symptoms.

Vascular Changes.—Changes in the capillary circulation and in the smallest arteries and veins cause little or no perceptible change in the appearance of the general fundus. But they do cause striking alterations in the color of the optic disk. To such changes must be ascribed one of the earliest, and perhaps the most constant, ophthalmoscopic symptom of this disease. This is a dirty or brick-red discoloration of the optic disk, which may be compared to the color of a concentrated urine, turbid with urates and uric acid, as seen against a white background. This symptom belongs to the stage of high arterial tension, and may antedate any noticeable alteration in the urine. It probably persists over long periods, with considerable alterations of hue from time to time. This appearance is not well described in the accounts commonly given of these ocular lesions. But I have carefully observed it a number of times, and mention it in this connection with no question as to its significance.

Irregularities of Caliber.—Although not so striking in the arteries as in the veins, these are sometimes unmistakable in the former. Their pathological character is often difficult to establish in any particular case. An artery to start with is not a rigid, machine-drawn tube. More like a running stream, its width varies from point to point, though normally within rather narrow limits. More important are the variations in the shape of its cross-section. An artery at one point may be flattened in the plane of the retina, at another point it may be flattened in a plane at right angles thereto. When seen with the ophthalmoscope, this gives it a narrower contour at one point than at another, although it might have the same sectional area at both points. Still more confusing are the changes in apparent width occasioned by variations in the vascular sheaths, or in other tissues surrounding the artery, the reflexes from the retinal surface, or the crossings of other vessels.

But in spite of these variations, which are constantly to be encountered in the normal eye, we can sometimes make out in the arteries alterations of outline that may be set down with certainty as abnormal. Distinctly sacculated aneurismal dilatations occur, but they are rare. I remember to have seen them, on vessels large enough to be certainly identified as arteries, in but two cases. Notable constrictions and considerable lengths of broadened vessels are more frequent.

Alterations in the contour of veins are much more common. They can be made out in practically all cases of albuminuric retinitis. Generally the most striking alterations are seen in the small veins that arise in the region of the macula. The veins present the same normal variations of contour as the arteries. But the pathological alterations are so much greater as to be readily recognizable. These alterations are chiefly in the direction of dilatation. Sacculated dilatations are much more common on the veins than on the arteries. When relatively large, they may be difficult to distinguish from hemorrhages, especially when other parts of the vein are hidden by a swollen hazy retina.

Changes of Size in the Vessels.—These really include the foregoing changes of contour. It is less common and less characteristic for the retinal arteries or veins to be dilated or contracted as a whole than for them to show the partial changes of size above referred to. Such general dilatation or contraction of the vessels occurs in connection with optic neuritis, the arteries being contracted and the veins dilated as in choked disk from other causes. Usually, in chronic cases, there is a general shrinkage of both arteries and veins, although some parts generally remain dilated.

Tortuosity of the retinal vessels is chiefly a sign of dilatation. A distended blood-vessel enlarges in all directions. It not only becomes broader, it becomes longer; and its increased length forces it to leave the comparatively straight course for one curving back and forth. Marked tortuosity of the retinal vessels occurs as an anomaly. As an anomaly, it is more likely to affect all of the retinal arteries or all of the retinal veins; still it may be most marked in, or wholly limited to, a single vessel. Tortuosity, as an anomaly, is more likely to be confined to the plane of the retina, the different curves of a vessel lying at the same depth, having the same refraction. Pathological tortuosity shows

greater variations of depth of the different parts of the vessels. The curves are toward and from the center of the eyeball, as well as in the plane of the retina. But the most certain guide to the character of the tortuosity is the co-existence of other retinal lesions, particularly the irregular venous dilatations.

The alterations in the color of the vessels may be due wholly to the character or to the amount of their contents. The dilated veins look dark. Extreme anemia causes all the vessels to appear pale. But changes in the vessel-walls may also produce changes of color. The most striking of these are those due to opacity of the walls concealing the contained blood-current. The vessels are often yellowish from such opacity. In a good many cases the gray or whitish line along each side of the vessel which is often seen in normal eyes upon the disk may be found extending far out into the retina or it may attend some limited part of a vessel quite removed from the optic disk. A more rare, but more striking condition, is that in which the vessel becomes an opaque brilliant white, through fatty degeneration. In one case that I saw with Dr. George C. Harlan of Philadelphia, who reported it to the American Ophthalmological Society[1], every retinal vessel in one eye, except one minute branch, presented the appearance of a brilliant white streak or band. Usually, however, such an appearance is confined to a single vessel or to limited patches in one or more vessels. Such patches may be found, without any evidence that the passage of blood through that part of the vessel is interfered with.

Retinal Hemorrhage is pretty constantly present among these retinal changes of chronic interstitial nephritis. But in most cases there are times when no hemorrhage will be found upon ophthalmoscopic examination. Mostly the hemorrhage spreads sufficiently in the nerve-fiber layer of the retina to give it the usual flame-shape. But smaller rounded dots of effused blood are frequent; and when they occur without much edema and without opacity of the retina they are readily overlooked. Very large hemorrhages are rare in the condition specially under consideration. They are more apt to attend the toxic exudative form of disease. How long any particular retinal hemorrhage will be recognizable as a hemorrhage is always uncertain. Small hemorrhages may remain apparently unchanged for several weeks. In other cases large ones wholly disappear in a few days. Rapid and complete disappearance is probably a favorable sign.

The symptoms thus far discussed—the changes in the appearances of the vessels and hemorrhages—are clearly dependent upon alterations of the vessel-walls. They are the retinal expression of the general vascular degeneration which seems to be an essential part of this disease. The edema and degenerative changes in the retina proper are so constantly associated with the above changes that it is reasonable to suppose they have the same origin.

Edema of the Retina is usually localized, at least it is much more marked in some parts of the retina than in others. In the affected patches, the color is lighter and more gray than that of the normal fundus. Sometimes it is wholly gray, with no trace of the normal fundus red. In these patches the retinal vessels are more or less hidden, except the parts that come fully up to the surface of the retina, which become more noticeable by reason of the strong contrast of their gray background. A small knuckle of dilated vein appearing thus upon the surface, while the remainder of the vessel is hidden by opacity of the swollen retina, may look exactly like a small hemorrhage. Apparent small hemorrhages in the midst of the retinal edema must, on this account, be carefully examined before they are passed upon. Close inspection may show the affected vessel entering the opaque patch.

Degenerative Changes in the Retina.—The brilliant white patches due to fatty degeneration in the retina are the most striking ophthalmoscopic symptom of chronic interstitial nephritis. They probably always appear in a case that runs a complete course. Such a patch may follow and arise from a retinal hemorrhage; it may be a late stage in the history of a mass of exudate; or it may follow a localized edema. But smaller patches, and even those of medium size, may arise without any evident preceding lesion. So that they seem to have a direct relation with the underlying vascular change or its essential cause. Such spots are not peculiar to albuminuric retinitis. They are found in connection with optic neuritis from brain tumor; are a leading feature of diabetic retinitis; constitute the characteristic wreath of retinitis circinata, and sometimes appear in retinal thrombosis and in leucemic retinitis. Yet the first thought on finding such patches should be of the renal-vascular disease. Their arrangement in radiating lines about the macula, certain bundles of nerve-fibers being affected at different points, while others remain intact throughout, is the typical arrangement. But this grouping may be quite wanting without throwing any doubt on the diagnosis. A few times I have found these spots chiefly in the periphery of the retina. When this was the case the spots were all small. Large patches appear only near the disk or macula.

These white spots, it would naturally be inferred, are of comparatively late and slow development and somewhat permanent in character. But some are almost always found at the first examination of the case; and last year W. A. Martin[1] reported a case seen when vision was first impaired, in which exudates began to appear in ten days, and in the course of three weeks a perfect halo characteristic of albuminuric retinitis had developed at the macula. Nor are such patches entirely permanent. They may often be

[1] Transactions for 1896, page 190.

[1] Ophthalmic Record, July, 1900.

seen to diminish, their outlines becoming more indefinite; and in cases that persist for a long time, they may wholly pass away.

The degenerative changes in the pigment epithelium are mostly secondary to hemorrhage, or to a distinct inflammatory process in the overlying layer of the retina. They include sharply localized atrophies and masses of pigmentation. That more generalized changes in this layer occur is not unlikely, but they have not been carefully studied.

Masses of Exudate.—The large masses of exudate found near the optic nerve entrance and posterior pole of the eye, in some cases, are on the one hand related to hemorrhage, on the other to edema, and they may become the origin of the white spots. They are however seen especially in albuminuric retinitis due to acute nephritis and to pregnancy. In chronic interstitial nephritis I have met them chiefly in cases in which toxemia was strongly marked. This might be coincidence, but it suggests an origin from something besides vascular degeneration. The exudate causes swelling of the retina to several times its normal thickness, and disfigures the fundus with dirty reddish-white blotches, which may obliterate the usual landmarks of the eye-ground, even the optic disk. These masses may embed or hide the other changes in the retina. They are liable to great changes of form and amount and may be entirely removed.

Associations of the Retinal Lesions.—As has before been indicated, these retinal lesions are very closely associated with vascular changes. I have never seen them approaching a typical development, but in conjunction with vascular rigidity; except the hyperemia first mentioned. In the great mass of cases they appear just when the prolonged high vascular tension begins to be insufficient and elimination is failing. The association with vascular degeneration is more constant than association with albumin in the urine, casts of any form, or any other clinical evidence of renal disease. It is this association that gives these lesions their unique prognostic significance. They appear when the balance of blood-pressure and matter to be eliminated has been lost, and give most positive notice of a state of nutrition that cannot very long continue. If "a man is as old as his arteries," these evidences of arterial degeneration tell in unmistakable language that his race is nearly run.

Prognosis.—Accumulated statistics now including many hundreds of cases, brought together from all parts of the world, show that a large majority of patients presenting these lesions die within a year after they are first discovered. Belt brought together some 419 cases and found that 72 per cent. were fatal at the end of the first year, and 90 per cent. within two years. The cases reported from Haab's practice by Possauer are even more instructive. Of men applying at his clinic all were dead within two years. Of the women coming to the clinic 32 per cent. survived that period. But among private patients who could live comfortably, only 59 per cent. of the men died within two years, and of the women only 53 per cent. These figures, which are to a large extent supported by the experience of others, give a strong indication as to the proper management of these cases, and the especial dangers that threaten to terminate the life of the patient suffering from chronic interstitial nephritis.

Conclusion.—In the foregoing account special emphasis has been laid upon the close relation between these retinal lesions and the degenerative changes in the walls of the blood-vessels. Whether the vascular changes cause the retinal lesions, or whether their connection is that both spring from a common cause, the retinal symptoms take from this close connection great importance. They throw light upon what goes on in the central nervous system, and, modified *pari passu*, in other organs of the body. Whether considered as a means of understanding the essential nature of this disease process, or as throwing light on the character and course of the individual case, they have an importance that the mass of physicians very imperfectly appreciate.

EXOSTOSIS OF FEMUR DUE TO TRAUMATISM.[1]

BY W. R. TOWNSEND, A.M., M.D.,
OF NEW YORK.

A MUSCULAR young man of twenty-five years of age while playing football on February 12, 1901, collided with another player and was struck across the right thigh by the other man's knee. An immediate effusion followed into the knee-joint. The patient was seen by Dr. Kimball, who very properly applied a plaster cast and kept the knee at rest. This treatment was continued for three weeks, and at the end of that time the swelling had subsided and the knee synovitis was apparently cured; but, to make certain that the knee would not be damaged, a plaster cast was reapplied and left on for another three weeks, when the knee was found to be free from fluid, straight, and flexion restricted to about thirty degrees; above the joint was found a hard mass. The patient was then referred to me.

An examination showed the knee-joint free from fluid. The knee could be fully extended, but could not be flexed more than thirty degrees. No pain or tenderness about the joint. About two inches above the knee was a hard mass four inches long and apparently attached to the femur. Deep pressure gave slight pain. The right thigh measured seventeen inches four inches above the patella, the left measured eighteen inches; the right thigh, six inches above the patella, eighteen and one-half inches, the left, nineteen and one-half; the right thigh, nine inches above the patella, nineteen and one-half, the left twenty and three-quarter inches. The restriction of motion in the knee seemed to be due to the presence of

[1] Patient, radiograph and specimen presented at meeting of Clinical Society of New York Polyclinic, Nov. 4, 1901.

this mass, rather than to any condition within the joint. The quadriceps could not be fully stretched, and when an effort was made to bend the knee, the patella could not slide downward.

The diagnosis lay between an exostosis, a sarcoma or a myositis ossificans. Sarcoma, although it does occasionally develop with great rapidity, was thought to be the least likely diagnosis, as the man's condition was so perfect. There was no pain and the injury which caused this growth was received less than two months prior to my examination.

Two X-ray pictures were taken. An anteroposterior view shows absolutely nothing of the tumor. A lateral view shows little patches of darkness in the muscle, and a perfectly clear, clean edge to the femur. It does not show any connection between the femur and the bony tumor. Owing to the short time that the bone had been forming, it was not expected that the shadows would be any darker than they were. From this picture I was rather inclined to the diagnosis of myositis ossificans, but examination after removal of the tumor showed that it was an exostosis.

Exostosis of Femur.

Operation was performed April 9, 1901. An incision about four inches long was made along the anterior surface of the thigh, directly over the tumor. It was removed without any difficulty. Care was taken not to enter the synovial sac above the knee-joint, as the lower end of the tumor infringed on it. The tumor was entirely dissected out, with some of the muscle. It was found attached to the periosteum and not to the bone. The wound healed *per primam,* the man's temperature never went above 99° F., and he made a complete and rapid recovery. On May 15th he could bend his knee forty-five degrees; on May 22d, fifty degrees; on May 27th, fifty-five degrees; on June 4th, ninety degrees, and he is now able to move it through an arc of about one hundred and twenty degrees. The scar is not adherent, and he is able to resume his occupation, which is that of a professional tennis player.

The microscopical examination made by Dr. Jeffries of the Polyclinic Laboratory shows the following: The bone tissue removed from thigh of patient in the Polyclinic Hospital April 9th has been submitted to microscopical examination, and its nature determined as an exostosis. It is unassociated with the muscular tissue removed, other than by continuity. The two tissues are at all points separated by a thin layer of dense fibrous tissue of the white, inelastic variety. This fibrous capsule (?) is not a well-defined band, but gradually diminishes in density in either direction toward bone and muscle. The muscular tissue adjacent to the fibrous has to a certain extent been displaced by fibrous tissue, as muscular fibers with all degrees of atrophy are found embedded in the latter.

There is no sign of acute inflammation; the changes are all of a proliferative or formative nature. The bone tissue is of the cancellous variety, some of the trabeculæ of which contain cartilage. The marrow is a very loose fibrous tissue, richly supplied with blood-vessels of capillary and cavernous varieties. The cells are scant, and are arranged within the meshes of very delicate fibrillæ. They are generally spindle-shaped, but with an admixture of small mononucleated (lymphoid) cells. The surfaces of the trabeculæ are beset with a layer of osteoblasts and here and there a multinucleated osteoblast is observed. The measurements are 9 centimeters by 4½ centimeters by 2 centimeters.

MEDICAL PROGRESS.

PEDIATRICS.

Unnoticed Fractures in Children.—The overlooking of fractures is especially likely to happen in children, not only because they are less exact in their complaints, but because many fractures in children show disproportionately little pain or reaction. Even if the fracture be complete the child is often surprisingly tolerant. A series of 18 cases of fractures in children, in which diagnosis was confirmed by the skiagraph, is reported by F. J. Cotton and R. H. Vose (Boston Med. & Surg. Jour., Jan. 9, 1902), who suggest certain diagnostic points. In examining these patients there may be no complaint of pain, but some difference in the use of the limb of the two sides may be noticed. In some cases this is due to reflex muscular spasm of the same sort as is seen in joint disease. Illustrations are the limp associated with certain fractures of the tibia and the loss of grasp in green-stick fracture of the forearm; again, in fracture of the clavicle, if the child be asked to raise both arms he lifts one hardly more than half as high as the other. Passive motion in these cases may or may not be painful. If painful, the pain is felt only on extreme flexion or extension. Local tenderness may be slight, but is always present. Careful palpation may reveal deformity and now and then wholly unexpected crepitus is found. When days or weeks have elapsed a well-defined (often ring-like) callus is palpated. In treating the cases upon which their report is based, the writers obtained practically perfect results by simple fixation for from two to four weeks.

Enlargement of Bronchial Glands.—Although this is undoubtedly a comparatively frequent condition in

childhood, it is probably very seldom diagnosed because physicians are too careless in making physical examinations. D. McM. Officer (Inter. Med. Jour. of Australasia, Dec., 1901) says that it may be recognized by the presence of dulness in the interscapular region of one side, together with diminished breathing over that side of the chest. The latter sign results from the pressure of the glands upon the bronchi and consequent narrowing of the lumen. The most frequent cause of the enlargement of these glands is tuberculosis, and in children pulmonary tuberculosis is usually secondary to the enlargement of these glands. A chronic bronchopneumonia follows and, in contrast to adult tuberculous lesions, the signs are infrequently found at the apices. The early recognition of these glands at the root of the lung, therefore, becomes of prime importance. Influenza and measles are also causes of such glandular enlargement, but the enlargement is seldom so persistent as in the tuberculous cases.

Regulation of Food in Childhood.—Although the infant presents most difficult problems to the physician in regard to the proper modification of milk in the early months, and although so much has been written about the feeding at this time, one should not forget the importance of an intelligent supervision over the subsequent change of diet from milk to a more general one. J. E. Winters (Med. Rec., Jan. 25, 1902) shows that there are a rapid development and a marked functional activity of the glands which secrete the diastasic ferments from the seventh to the tenth month, depending upon the degree of development of the child and the advancement of dentition. This shows the need for more farinaceous food and among the most valuable of these is oatmeal, which contains a large percentage of iron, proteids, fat and mineral matters, the constituents most essential for the development of the child. On account of the cellulose present, oatmeal should be well cooked and drained, and a half ounce of oatmeal jelly may be added to each second feeding. At the end of the first year a soft-boiled or poached egg mixed with bread crumbs from stale bread may be added to the diet. The nuclein of the yolk is especially valuable on account of the iron and phosphorus. Only a small quantity twice a week should be given at first. A hard crust which will necessitate vigorous chewing is useful at this time. At the end of fifteen months a child should get whole milk, oatmeal or barley, soft-boiled eggs twice a week, crusts of bread twice a day and perhaps a little bread and milk. Cereals should be given without sugar, as the latter causes constipation by the large amount of water required to keep it in solution. Orange juice and prune pulp are the first fruits for a child and are especially good in cases of constipation. They are given one hour before meals. The growing child needs large quantities of mineral matter to build up the bony framework, but this must be in the form of organic combination with proteid substances. Raw milk, eggs, cereals and certain fresh vegetables furnish mineral salts in organic combination ready for assimilation. The mistake is often made of giving too much meat and meat extractives, which stimulate metabolism and really prevent laying on fat or muscle tissue, on account of their overstimulating action. Carbohydrates are easily oxidized and their oxidation serves to protect the proteids and fats from consumption. The shielding of these requisites for the growth and development of new structures is a matter of profound value and consequence to a growing child. During all the years of early childhood meat and its preparations should be given sparingly, for they also create a distaste for cereals, fats, and fresh vegetables, thus depriving the system of materials needed to shield the proteids from oxidation. To provide mineral constituents necessary for the growth of bone and muscle, vegetables which contain these substances fresh from the soil must be consumed in fairly liberal proportions.

Infant Incubation; A New Incubator.—There are four main problems in incubator work, (1) heating apparatus; (2) ventilation; (3) moisture; (4) portability and simplicity, neither of which can be obtained except at the expense of ventilation. A new incubator embodying desirable features is described by J. B. De Lee (Chicago Med. Rec., Jan. 15, 1902). The first and most important indication for the use of the couveuse is prematurity; infants are regarded as premature if they are born sooner than three weeks before term, if they weigh less than 5½ pounds, or measure less than 46 centimeters. Infants evidently premature should be put at once in the incubator; it may not be necessary to keep them there more than a few days, but the protection is especially needful during the first few hours. Congenitally feeble infants should be treated as premature; they may be of fair size, but have subnormal temperature, cyanosis or tendency to edema or sclerema. After difficult operative delivery even a full-term baby may be in a condition of shock; Lee would limit energetic measures for the revival of such infants and would place them as soon as possible in the incubator. Melena neonatorum and all congenital hemorrhagic manifestations, *e.g.*, hemophilia, multiple hemorrhages, morbus maculosis Werlhofii, are regarded as indications for the incubator. Two such cases with recovery are recorded; one had melena with eight profuse hemorrhages, the other hemorrhages from the nose and mouth and into the skin. At the Chicago Lying-In Hospital the temperature of the incubator at the outset is usually 89° F.; when the child is larger and ready to leave the incubator the thermometer is set successively at 86°, 84° and 82° F. The punier the infant, the more moisture needed; thirty to fifty degrees is a proper range. The dress of the incubator infant is all wool. Without mother's milk it is almost impossible to raise a premature infant. Artificial feeding has been abandoned; mixed feeding is somewhat better. The incubator infant needs at first no baths; it should be anointed daily with benzoinated lard. After ten days it may be bathed in water at 103° F. in a warm room. Daily massage and passive motions must be practised, with extreme gentleness at first. When the infant's temperature remains normal for days and when the child weighs about 4½ pounds, it is removed to its cradle. The period of incubator life varies from five days to four weeks. Operative cases are removed when they have recovered from the shock of the delivery. At the Chicago Lying-In Hospital 28 babies have been placed in the incubator in two years. Of these, 8 died in a few hours (these were usually frozen or in convulsions on arrival at the hospital); 3 had hemorrhagic diathesis; 2 died of atelactasis pulmonum; 1 lived four days, and 14 were reared and discharged well. Of the 14 that died, 2 were in the sixth month, 7 in the seventh month, 5 in the eighth month. Of the 14 that were saved, 2 were in the sixth month, 4 in the seventh month, 8 in the eighth month.

Primary Abdominal Tuberculosis.—Several recent papers upon this subject have expressed the belief that primary lesions of tuberculosis within the abdominal cavity were very rare, and the authors have urged this fact against the communicability of bovine tuberculosis to man. A. Jacobi (N. Y. Med. Jour., Jan. 25, 1902) expresses the view that even the few undisputed instances in which the disease has been shown to have been acquired by children feeding on milk from tuberculous cows are sufficient to make one extremely careful in regard to the use of any suspected milk. Furthermore, he believes that primary abdom-

inal lesions are much more common than is ordinarily thought. Primary tuberculous ulcerations of the intestine are seldom found, and when they are found they are mostly connected with pulmonary lesions, usually of a mixed type. Not less rare is primary tuberculosis of the mesenteric glands, but peritoneal tuberculosis is very frequent and he believes that it is due to the passage of the tubercle bacilli through some slight or transient lesion of the mucous membrane or even through a normal inner coating of the intestine.

Acute Articular Rheumatism in an Infant.—Beginning in the left elbow which was swollen, red and very tender, rheumatism attacked in succession the left wrist, knee and ankle, right knee, ankle, elbow and wrist of a child twenty-seven days old. On the sixteenth day the temperature was normal, but the pulse remained 150, though the inflamamtion in all the joints but one elbow had subsided. The treatment instituted by P. J. BARCUS (Archives of Pediatrics, Jan., 1902) was 0.06 gm. (gr. i) each of bicarbonate and salicylate of sodium every three hours three times a day, and there was no stomach disturbance whatever. One month later the right knee was again swollen, but this subsided in a week. After complete subsidence of the joint affections, the infant slowly gained weight, the heart showing nothing abnormal on auscultation, but continuing to beat at 125.

The Malnutrition of Tuberculosis.—A study of this condition is briefly summarized by F. M. CRANDALL (Arch. of Pediatrics, Jan., 1902). Wasting, anemia and other evidences of malnutrition may occur in infants long before any local disease can be detected. The disease may run a course identical with marasmus, especially if disseminated or involving only the lymph-nodes. The anemia is usually a simple anemia, and any anemia in adolescents increases the danger of tuberculous invasion. In some cases a period of anemia and wasting is followed by irregular fever and later by signs of lesions in the lungs; but in other cases the local lesions appear first, especially pneumonia. Persistent and increasing malnutrition in a child without discoverable cause is always suggestive of tuberculosis.

Double Sacculated Empyema.—A case of this kind in which a high temperature, unaccounted for by physical signs or rational symptoms, persisted for three months is reported by L. E. HOLT (Archives of Pediatrics, Jan., 1902). The spleen was much enlarged and, though repeated examinations failed to discover malarial organisms, quinine was given but without effect. After a few days a few râles were noted in the lungs, and on the ninth day the right upper lobe gave signs of consolidation. These signs soon disappeared, but nearly always thereafter there could be heard coarse râles, occasional friction sounds, and rude breathing. The temperature continued, the Widal test proved negative, and the leucocytes numbered 28,000. The sputum was negative. The child, boy of two and a half years, was steadily wasting, having all this time had a persistent diarrhea. During the last week of his illness the temperature fell to nearly normal, and remained so until death. There was no displacement of the heart at any time, no vomiting, no cerebral symptoms. The autopsy revealed a small sacculated empyema, containing one or two ounces of thick creamy pus, in each lung. One was situated on the diaphragmatic surface of the right lung and the other near the base of the left lung and close to the spine. There were interstitial bronchopneumonic areas in the right upper lobe and ulcers in the colon.

Acute Hemorrhagic Nephritis Complicating Influenza.—In an analysis of forty cases of this complication D. J. M. MILLER (Archives of Pediatrics, Jan., 1902) found it to occur eighteen times in cases under sixteen. The onset is usually early; hyaline, epithelial and granular casts are present, and sometimes blood casts, and the albumin is generally abundant. The urine was mostly scanty. Edema was observed in less than half of the cases, fever in about half. In most the duration of the disease was less than a month. The kidney lesions are those of an infectious or toxic nephritis the type of which is the scarlatiniform.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Insects and the Spread of Disease.—In an interesting and instructive article, J. MCFARLAND (Medicine, Jan., 1902) reviews the change in attitude toward certain insects, whereby those once thought merely annoying are now considered disseminators of disease. Insects may carry on their bodies disease-producing microbes and occasion infection by alighting upon wounds or indirectly by alighting upon foodstuffs. They may carry within their bodies germs which may subsequently be deposited with their feces; tubercle bacilli have been detected in the feces of flies fed on tuberculous sputum. Suctorial insects by biting a diseased animal may carry infection to the next animal bitten. They may take infectious germs into their bodies and transmit them to their offspring, bites of which are infectious. Insects may take in parasitic organisms and transmit them to other animals in some, changed form in which they are infective, for example, the change of the malarial organism in the mosquito's alimentary tract, the formation of "blasts," and their escape with the salivary secretion when the insect bites. In like manner is yellow fever transmitted, this transmission not being direct, but requiring an interval of ten days before the mosquito's bite is infectious. A third disease transmitted by the mosquito is filariasis. Insects, such as flies and roaches, may become infected, die, fall into foodstuffs, and thus impart infection to man. Flies have been known to die from the infection of bubonic plague.

New Method of Isolating Typhoid Bacillus.—An attempt was made by CAMBIER to isolate the bacillus typhosus upon the theory that it alone would pass through a porous earthen filter. U. BIFFI (La Rif. Méd., Jan. 3, 1902) has proven that the bacterium coli not infrequently passes through the porous diaphragm simultaneously with or prior to the bacillus of Eberth. To overcome this objection, the writer suggests that, previous to filtration, the substance to be examined for typhoid bacillus be introduced into bouillon to which has been added a serum which will agglutinate the bacterium coli; by this means the bacillus typhosus alone will pass through the diaphragm. The agglutinating serum for the bacterium coli may be readily obtained by following the method of Pfeifer in the preparation of agglutinating serum for the bacillus typhosus, care being exercised to inject simultaneously into the rabbit which is to furnish the serum different varieties of the bacterium coli, so that a serum may be obtained which will equally well agglutinate all varieties. The quantity of serum to be added to the bouillon depends naturally upon its agglutinating power; hence it is well to make several tests in order to obtain the proper dilution.

Effect of Quinine on Plasmodium Malariæ.—An exhaustive study of this subject has been made by D. LO MONACO and L. PANICHI (La Rif. Méd., Jan. 2 and 3, 1902) in which the effect upon the plasmodium of solutions of quinine bisulphate in various degrees of concentration has been carefully noted. Microscopical examination of freshly-prepared blood specimens demonstrated reaction of the plasmodium to a drop of the solution, placed upon the margin of the cover glass,

proportionate to its strength; weak solutions producing excitation and emission of pseudopodia, stronger solutions causing detachment of the parasite from the red blood-cell. The youngest, non-granular forms of the plasmodium proved to be the least influenced. The practical value of these observations rests upon the determination of the strength of solutions necessary to effect such detachment in the various forms of the parasite; in the authors' experience, a dose of quinine, equivalent in strength to the solution causing this phenomenon, administered to a patient, was sufficient to cause disappearance of malarial paroxysms. Acting upon this, an attempt has been made to establish a rational dosage in each type of malarial infection. Clinical observation also showed that a smaller dose was necessary to prevent recurrence of paroxysms, if administered at the onset or height of pyrexia, than when given between paroxysms; the supposition being that antiparasitic substances which supplement the effect of quinine circulate in the blood during pyrexia.

Glycogen and Glucose in Muscles after Death.—After reviewing the literature of this subject, and quoting conclusions drawn by various observers, notably those of Lacassagne and Martin, who hold that the presence of both substances indicates rapid death due to violence, the absence of both slow death not due to violence, and that the presence of glucose without glycogen points to sudden death after prolonged illness, C. CURINI-GALLETTI (Gazz. degli Osped., Dec. 29, 1901) gives the results of his own investigations as follows: (1) Glycogen is found in both muscles and liver, in greater quantity after death by violence than after slow death; this is true, though not to the same degree, of glucose; therefore, the quantitative estimation of glycogen is of greater value than that of glucose in the differentiation of the mode of death. (2) Estimation of glycogen and glucose in the liver yields more positive indications as to the manner of death than estmation of those substances in the muscles.

Angiosarcoma of the Clavicle.—This group, first described and named by Kolaczek, is well represented in the description of a large specimen recently removed from a girl of sixteen by G. T. BEATSON (Brit. Med. Jour., Jan. 18, 1902). The surgicopathologic history of the case is as follows: In seven months a swelling, the size of an infant's head developed in the region of the left clavicle. The patient could assign no cause for its appearance; it began as a small tumor which was freely movable beneath the skin; it gave no symptoms save one of alarm from its great size and rapid growth. On palpation it was firm and elastic, almost cystic in character. There was neither fluctuation nor pulsation. It was firmly anchored at its base, but it gave no pressure symptoms. A skiagraph of the parts showed that, with the exception of a small part at its outer end, the left clavicle had disappeared. Operation confirmed the diagnosis and the patient made a good recovery. The gross pathology of the neoplasm was as follows: It was a globular mass, flattened anteroposteriorly. It measured 5½ by 3 inches and had a fairly-marked capsule to which masses of fascia and muscle were adherent. On section it was "fleshy." The microscopical examination of the mass showed it to be sarcomatous and of the round-celled variety. The very striking and peculiar characteristic, however, was the presence in each group of cells, and generally in the center of it, of one or more well-marked blood-vessels around which the cells are arranged concentrically. The very intimate relation of cell to vessel in the sarcomata is well known; some pathologists go so far as to say that all such neoplasms take origin in the blood-vessels. However this may be, there is undoubtedly a variety of sarcoma characterized by masses of round cells and springing from the adventitia of the vessels around which they are grouped. In this small group, as in the present case, the endothelium is entirely normal; this fact clearly distinguishes it from the better known endotheliomatous sarcomata. By the mechanics of their growth the angiosarcomata present a more or less constant alveolar structure. They are occasionally melanotic and suffer the usual degenerations. The after-history of the case will be interesting. Six months after removal some small glands were removed from the region of the scar, but while sarcomatous in type they were diagnosed as inflammation, largely because of the continued good health of the patient. Metastasis in the angiosarcomata, except when they are pigmented, is rare, but opinions as to the probability of local recurrence differ; Senn states that after-growth is very rapid; Stengel that it is very rare; the tumors are classed by him as in a measure benign. This case, so far, supports the latter view; two years have passed since the operation and there are no signs either of metastasis or of local recurrence.

OBSTETRICS AND GYNECOLOGY.

Early Ectopic Gestation.—That the three classical gross symptoms of ectopic pregnancy, *i.e.*, pain, hemorrhage, and pelvic tumor, are not the essentials of an early ectopic gestation is shown by E. K. BROWD (Phil. Med. Jour., Jan. 18, 1902) in a series of cases observed by himself and others. His own six cases were all less than six weeks pregnant and the symptoms of pain and tumor were entirely absent, the only sign being an untimely oozing of blood from the uterus. As pain is the result of an overfilled and pathological condition of a tube and takes place usually when adhesions are formed, it is not apt to come on until the later stages, the third month or more. The local tumor also indicates an advanced stage. The oozing of blood entirely depends on the location of the ovum in the tube; the flow may escape by the fimbriated extremity into the abdominal cavity and so give no external evidences. It may also be stated that not every interrupted hemorrhage from the uterus speaks for the existence of an extra-uterine pregnancy, but may be caused by a pus tube, cystic disease of ovary, imperfect abortion, polypoid endometritis, etc. In discussing the treatment, the analogy is drawn between early ectopic gestation and suspected appendicitis, as in the latter case the best results are obtained by early interference. So bearing in mind the comparative safety of exploratory laparotomies, he recommends that in every suspicious case of extra-uterine pregnancy operation be done when its existence is quite positively known, and also in cases in which dark and baffling symptoms may cause doubt as to its presence.

Decreasing Fecundity.—The progress of medical science in general is shown in the control of infectious diseases and a decrease in the death-rate. Although a like positive result ought to be expected from the progress of obstetric and gynecic science, this is not the case, but the rate of sterility and the number of miscarriages are increasing and the birth-rate is growing steadily less, particularly in this country. These rather startling facts are made the subject of a paper by G. J. ENGELMANN (Phil. Med. Jour., Jan. 18, 1902). From a collection of available statistics he finds a decreasing birth-rate in all European countries, lowest in France; about the same or even less in the United States, far below that of France for the American born of this country, much higher for the foreign born (2½ times). The American statistics are based on those of six States, others being incomplete. These figures, however, are relatively correct. Although the fecundity of the American-born woman is lower than that of the

woman of any other country, it is found that intermarriage with a foreign male yields a higher fecundity than with an American husband. The causes for such decrease are found principally in the present social conditions which inspire various methods of prevention of conception and family limitation. Health is far more common as the badge of motherhood, while early exhaustion and premature decrepitude are much more likely to issue from the various methods resorted to for the avoidance or prevention of conception. The author believes that the latter are factors more potent in the causation of decreasing fecundity than is the progress of gynecic science for the contrary.

Adhesion of the Placenta.—This is always a troublesome and often an unexplainable condition in childbirth. A. NORDMANN (Arch. f. Gyn., Bd. 65, Heft 1, 1901) presents the following conclusions upon the subject: The presence of anatomical changes as the cause of the adherence of the placenta is beyond all question. There are, at the present time, two types of this adherence. The first type depends upon changes in the decidua serotina. The second type is caused by a growing together of the muscular tissue of the uterus and the uterine surface of the placenta. The cause of the serotinal form seems to depend upon injuries of the mucous membrane of the uterus, such as repeated separation of the placenta, the application of caustics, etc. The muscular form is probably the most common and is very likely due to a variation in the normal insertion of the organ upon the uterus.

Tuberculosis of Female Genital Organs.—Deductions from an extended study of this subject are tabulated by C. MERLETTE (Arch. d. Ostet. e Gin., No. 12, Dec., 1901) thus: (1) Tuberculosis of the genital organs is more frequent in women than in men; (2) this preponderance in the female is partly due to the closer relation between the genital organs, peritoneum and intestines, partly to infective causes due to functions of generative life; the condition is rare before puberty and after the menopause; (3) it is generally secondary, but may be primary; (4) tuberculosis of the uterus is more frequent than is generally supposed; (5) genital hypoplasia predisposes to tuberculosis; (6) cervical tuberculosis may be miliary, catarrhal, or ulcerative; (7) tuberculosis of the body of the uterus occurs in three forms, endometrial, interstitial and mixed; (8) demonstration of the bacillus in uterine secretions is rarely possible; (9) diagnosis by curettage is conclusive only in endometrial tuberculosis, the scrapings showing giant cells and tuberculous follicles; (10) of great semiological value is the injection of uterine secretions into animals, both in tuberculosis of the uterus and in salpingitis; (11) the tubes are especially prone to tuberculous infection; (12) tuberculous salpingitis is almost invariably bilateral; (13) there are three forms of tuberculous salpingitis; peri- and endosalpingitis, and parenchymatous; (14) nodules in tubal isthmus are not pathognomonic of tuberculosis, but frequent in this condition; they are often congenital or may originate in chronic salpingitis; (15) the ovaries show a certain resistance to tuberculosis; (16) more than one-half of tuberculous ovaries become cystic; (17) tuberculosis seems to originate in the stroma of the ovary and not in the ovisacs; (18) of value in the diagnosis of genital tuberculosis is digitorectal examination, which sometimes reveals a granular or nodular condition in the cul-de-sac of Douglas and about the recto-uterine ligaments; (19) consideration of the patient's general condition and history are important to the diagnosis.

Ovariotomy During Pregnancy.—This is an operation which occasionally is necessary. E. ORGLER (Arch. f. Gyn., 1901, B. 65, H. 1) gives an exhaustive study of the subject and states the following facts concerning its effects on the mother and child: The mortality of ovariotomy during pregnancy is not greater than at any other time. Some authors state that interruption of pregnancy by abortion or by untimely birth and by death of the mother occurs in perhaps 22½ per cent. of the cases. That means that in every four or five operations an unfortunate result may be looked for. Permanent damage to the mother is very rare, abnormalities of childbirth ascribable to the operation have not been noted. The earlier the operation is done, the better the results will be as a rule. So far as the immediate results are concerned, it appears to make no difference whether one or both ovaries are removed. Vaginal ovariotomy is as a rule not to be undertaken during pregnancy.

Puerperal Septicemia.—The frightful mortality which has attended these cases led the American Gynecological Society in 1898 to appoint a commission to investigate and propose some line of treatment. W. R. PRYOR (N. Y. Med. Jour., Dec. 25, 1902), a member of this commission, has analyzed all the cases which have occurred during the past five years and gives some very striking views. All cases may be divided into the saprophytic and septic types. In the former cases the infection is always superficial, is accompanied by only moderate fever, and carries no risk to life; but, inasmuch as this form of infection renders the patient susceptible to the implantation of more virulent germs, saprophytic infection has a great importance and demands treatment of a preventive nature. Therefore, the dead material within the uterus must be removed. About seventy-five per cent. of cases are non-septic and about twenty-five septic, so that curettage is indicated in about three-fourths of the cases. The best authorities upon the treatment of the septic cases believe that no local treatment should be applied to the uterus, for the infection is deep within the uterine tissue and cannot be removed by simple curettage. Interference merely increases the area of infection and can only do harm to the patient. Williams and Krönig report a mortality of only five per cent. in septic cases and they never treat the uterine cavity. It, therefore, becomes important to determine in a given case whether the infection is saprophytic or streptococcic; this can be done usually by bacteriological examination, if the clinical symptoms are obscure. A saprophytic case demands curettage, but a streptococcus infection is greatly endangered by such a procedure.

Lumbar Anesthesia in Obstetrics.—The advantages of anesthesia of the entire region below the umbilicus in labor are not to be denied, says C. S. GAUTIER (Rev. Méd. d. Canada, Jan. 1, 1902). Anesthesia lasting two hours may be produced by spinal injection of one centigram of cocaine; points in its favor, aside from the analgesia produced, are said to be as follows: The patient is more easily managed; the soft parts, perineum, etc., are less exposed to laceration; uterine contractions are stronger and more frequent; and danger of hemorrhage from uterine inertia is reduced to a minimum. The intensity of uterine contractions induced by intra-arachnoid injection of cocaine constitutes a contraindication to its use in pregnancy before term. The pros and cons of spinal anesthesia, as shown by the experience of obstetricians and surgeons, are set forth with an apparent preponderance of opinion in its favor.

THERAPEUTICS.

Heliotherapy in Pharyngitis.—The solar rays have been utilized in the treatment of pulmonary and leprous tuberculosis; the simplicity and economy of this method of treatment are points in its favor, although its dependence upon weather conditions pre-

vent its more general use. Forns (Rev. Esp. Med., Dec. 20, 1901) has met with most encouraging results in the treatment of pharyngitis by this method, both in acute and chronic cases. The patient is directed to hold the mouth open, allowing the sun's rays to pass well to the back of the throat for eight to ten minutes; within this time relief from pain and discomfort is experienced. The procedure is repeated as the patient's condition demands it. The author believes that the curative effect is due to (1) attenuation of the pathogenic power of micro-organisms through strong light; (2) thermic action upon inflammation, (3) and chemic effect upon the local nutrition rendering the tissue more resistant.

Ecchymosis of Eye.—The ordinary "black eye," if seen at once, write C. A. Wood and T. A. Woodruff (Medical Standard, Jan., 1902) is best treated by cold applications (cloths wet with ice-water) or by an evaporating lotion such as the following:

℞ Liq. plumbi subacetatis.....3j
Alcohol 3j
Aq. dest. q.s. ad.....Oj

When a definite blood-clot has formed, the skin should be incised or two or three leeches applied to the orbital margin. After two days the only thing to do is to apply flesh-colored paint to hide the discoloration.

Abrin and the Digestive Ferments.—It having been shown that abrin, the active principle of jequirity-bean, acts much more feebly by mouth than by subcutaneous or intravenous injection, S. K. Dzierzgowsky and N. O. Sieber-Schoumoff (Archives des Sciences Biologiques, Vol. VIII., No. 5, 1901) instituted experiments and reached the following conclusions: Abrin can pass through porcelain filters, and its toxicity is enfeebled to a slight degree by hydrochloric acid of the strength found in gastric juice, or by the various digestive ferments. Given by mouth it is partly destroyed in the organism, and, under the influence of conditions existing in the digestive tube, not only loses its poisonous properties, but has its other powers modified. For example, an extract of the excretions containing it can no longer cause a conjunctivitis or bring about the characteristic pathological lesions.

Organic Preparations in the Treatment of Fatty Stools Occurring in Pancreatic Disease.—Serious interference with the absorption of fats unaccompanied by icterus but associated with diabetes mellitus is described somewhat rarely in medical literature. Two dozen cases have been collected by H. Salomon (Berl. klin. Woch., Jan. 20, 1902). Very few autopsies are reported in cases belonging to this class, but it is reasonable to assume the presence of pancreatic disease or of some cause which shuts off the pancreatic juice from the intestinal canal. Fles and Langdon-Down were among the first to use pancreatic substance or pancreatin in the treatment of serious cases of steatorrhea. In the first case described by Salomon the fat in the stools of a glycosuric patient was equal to about 50 per cent. of the fatty input. The steatorrhea was promptly diminished upon the administration of pancreatic substance and of pancreatin-Aachen. During the period of treatment with these preparations N—resorption increased, while the elimination of fat was diminished to less than 20 per cent. of the quantity represented in the patient's diet. Recent investigations indicate that in diabetics the acetone-bodies which appear in the urine are products of fat. In conformity with this theory Salomon found that acetone elimination was relatively large in his patients during the periods when pancreatin was being administered and when the absorption of fats was relatively good.

Electricity in the Treatment of Sprains.—The use of electric currents in cases of sprain is not so frequent as it ought to be in view of the benefits which it offers. Charrier and Planet (La Presse Méd., Jan. 8, 1902) enumerate these benefits as follows: Immediate cessation of pain results from the first treatment. Thanks to the analgesia produced, movement of the articulation becomes possible. The disappearance of the pain is, however, but temporary, necessitating renewed treatment. The electric current promotes absorption of the periarthritic exudate in cases of recent sprain. In long-standing cases, in which the functional prognosis is grave, the faradic current effects a degree of amelioration which ranks it among the most valuable of available measures. A rapidly intermitting induced current is employed. The electrodes are placed over the articulation, the negative electrode in contact with the most painful area. One or two sittings daily, of a duration of from five to ten minutes, give marked relief.

Suggestion in Medicine.—Susceptibility to suggestion is present in healthy individuals and is probably much greater in persons suffering from disease. The adult patient consulting a doctor is in a very receptive mood and a ready recipient of any suggestion a physician may make. If the patient is apprehensive, writes G. C. Smith (Boston Med. & Surg. Journal, Jan. 30, 1900), great caution is necessary in the method of examination; a pessimistic patient is more open to evil suggestions than to good ones. To secure most good from suggestive therapeutics, one should not say the remedy *may* relieve, but that it *will* relieve. Only one sugestion should be made at one sitting, as the mind is best influenced by keeping one thought dominant for several days, until the idea becomes fixed. Suggestions should be founded on facts, some of which at least can be demonstrated to the patient. The pernicious influence of evil suggestion is illustrated in cases of traumatic neurosis. Another evil result of suggestion is seen when surgeons summarily dismiss their patients immediately after operation without reference to subsequent treatment. Aches and pains return without warning; friends are consulted, the surgeon is criticized and the profession falls into disrepute. A long time may be required to rid a patient's mind of ideas jeopardizing health, which have been allowed carelessly to take root. Smith recommends thorough psychological preparation for the medical school, as a means to more exhaustive examination, keener observation and better control of patients.

Treatment of Cardiac Dilatation.—"Like dress, fashions of disease 'come in' and, after lasting a variable period, 'go out.'" Recently a remarkable popularity for appendicitis has been noted, and many have fallen victims to the operation. Enteroptosis and adenoid growths are conditions which now receive their full share of attention. Although weak and dilated hearts have undoubtedly increased relatively in numbers during the past few years, fashion has been assisted in the creation of this lesion, according to I. B. Yeo (Practitioner, Jan., 1902) by the dire influences of the grippe, excessive muscular exercise and the tobacco habit. He attributes many dilated hearts, especially in middle-aged people unused to exercise, to the unreasonable cycling habit. Many young men of rather small stature are proud to boast of their health and athletic prowess, little dreaming that their efforts to compete with men of much greater power has caused a much dilated and hypertrophied heart. He believes that the pernicious influences upon the heart occasioned by influenza may be largely avoided by a prolonged period of physical rest. He also insists that too little attention is paid in the later stages of failing compensation to this method of treatment—"rest in bed." Baths and "resisted exercises" have become too popular and

are often indiscriminately employed. He accounts for the beneficial results of saline baths and the effect which they have in decreasing cardiac dulness by the modification of the type of respiration which is occasioned. The superior costal type takes the place of the abdominal type, and there is an increase in expansion of the upper parts of both lungs. In mild cases general tonics are all that are necessary. When dyspnea and troublesome palpitation are present the following prescription is of great use:

℞ Ferri et ammon. citratis.....gr. lxxx
Tinct. digital.....m̃xl
Sprt. ammon. arom.....3ij
Infus. calumbæ, ad.....3viij

M. et sig. One ounce twice daily after meals. In less serious cases the following may be used as a good tonic:

℞ Quininæ sulph.....gr. xvj
Tinct. nucis vom.....3ij
Vel tinct. stroph.....m̃xl
Ext. cocæ fl.....3iv
Spts. chloroformi.....m̃lxxx
Aquæ, ad.....3viij

M. et sig. One ounce twice daily before meals. In anemic cases iron and nux vomica are very beneficial when followed by an aperient to keep the bowels in condition:

℞ Ferri sulph. exsic.....gr. xxxvj
Saponis.....gr. xviij
Pulv. nuc. vom.....gr. xxiv
Aloin.....gr. iv

M. et Div. in pillulas XXIV. One pill twice daily.

Lecithin in Tuberculosis.—The therapeutical application of lecithin has been studied in relation to various diseases. H. Claude (Rev. d. l. Tuberculose, Vol. VIII., No. 4, Dec., 1901) has sought to ascertain by experimental means its effect in tuberculosis. Animals were first inoculated with tuberculosis, two-thirds of the number so treated receiving lecithin by mouth or subcutaneously; the remainder received no medicament and succumbed to a general miliary tuberculosis about a month after inoculation. In those to whom lecithin had been administered, life was prolonged from one and a half to six months. In every case the body weight was preserved and in some instances it was increased; diminution and elimination of phosphates was diminished and elimination of urea increased. Necropsy showed that the disease had taken a more benign form and, instead of giving rise to a diffuse infiltration or caseation and ulceration, there was a tendency to sclerosis with limitation of the lesions. This modification of the tuberculous process, contrasted with its course in the untreated animals, would seem to be due to increased resistance given to the defensive elements of the organism through the introduction in excess of a substance already existing in the body.

Creosote in Pneumonia.—In a series of eighteen patients treated by this drug at the Roosevelt Hospital, W. H. Thomson (Med. Rec., Feb. 1, 1902) believes that many favorable results could be attributed to remedy. Only one death occurred, but as several were mild cases no deductions could be made in regard to mortality. The peculiar course of the temperature after the administration of the drug seems to denote a specific action. The disease terminated by crisis in only five days. In most of the cases there was a fall of from one to three degrees within twenty-four hours, followed by a rise and an irregular course for several days. The drug seems to act very favorably upon that important complication of pneumonia, tympanites. When given as the carbonate of creosote the stomach seems to have much greater toleration. About 180 grains are given in twenty-four hours, and no depressing effects upon the circulation have ever been noticed. Furthermore, there need be no fear of an injurious effect upon the kidneys. His usual formula is:

℞ Creosot. carbonat.....3ss
Glycerini.....3i
Aq. menthæ, ad.....Oss

M. et sig. Half an ounce in water.

SKIN AND GENITO-URINARY.

Psoriasis and Glycosuria.—The true etiology of psoriasis is still in doubt. English and American writers especially regard the disease as a dyscrasia, having possible etiological relations with rheumatism, gout and diabetes. Statistical evidence does not support the view that glycosuria and psoriasis are closely related, says W. Pick (Berl. klin. Woch., Jan. 20, 1902). Weinbrenner found diabetes to be present only once in over 500 cases of psoriasis, Schütz once in 100 cases, Nielssen once in several hundred observations. Bulkley was never able to find sugar in the urine of his numerous psoriatic patients. Pick experimented with 50 cases of psoriasis and 50 cases of various skin diseases, including eczema, scabies, prurigo, furunculosis, pityriasis rosea, urticaria, etc. To these patients 100 grams of grape-sugar was given two hours after breakfast; the urine was later tested for sugar. In 2 out of 50 psoriatics alimentary glycosuria was produced; 3 of the other 50 patients, all sufferers from widespread eczema, showed alimentary glycosuria. It appears that alimentary glycosuria is not more frequent in patients having psoriasis than in those having other chronic cutaneous diseases. It is not shown, however, whether psoriasis is to be regarded as a dyscrasia, or whether it is a neurosis, as French authors believe, or whether it is a local parasitic affection or dermatomycosis, as Neisser, Unna and others teach.

Indications and Limitations of Massage of the Prostate Gland.—The indications for massage of the prostate, as defined by L. E. Schmidt (Chicago Med. Rec., Jan. 15, 1902) are all those inflammatory diseases of the prostate gland in which it is desirable to enhance absorption, or in which the prompt and regular removal of accumulated secretion is desirable. Massage is furthermore indicated in insufficient development of the prostate and prostatic sphincter in youthful individuals and also in certain cases of sexual exhaustion. Stimulation of the circulation hastens the removal of inflammatory infarctions and congestions such as occur in simple catarrhal prostatitis. After a posterior urethritis symptoms may remain which are referred to the region around the perineum and anus. There may be no apparent urethral cause and prostatic swelling may be slight or may even be absent. Massage is obviously contraindicated if fever be present or if the prostate be exquisitely tender. In essential neuroses of the prostate great caution is necessary; under massage the prostate not only becomes exquisitely sensitive, but the general condition of the patient often changes for the worse. Massage of the prostate is done with the index finger, which is protected with rubber and well oiled to avoid unnecessary pain. In order to reach as high as possible one should avoid pushing against the coccyx and should exert pressure toward the perineum. In selected cases the use of instruments or of metal tips for the fingers may be necessary; in most cases the finger can reach all parts of the prostate and can carry out a thorough massage with greater delicacy and exactness than can be attained when instruments are used. In inflammatory cases very light rotating and stroking movements should be used; in old chronic cases, in which secretions have collected in cavities, energetic pressing movements will more effectually express such secretions.

Two or three minutes are required for each treatment, and the number of these each week depends upon the case. In persistent cases a pause of several weeks may be advisable.

SURGERY.

Surgery of Obstructive Jaundice. — Contributions from this field are perhaps more welcome than from any other in the broad domain of surgery, and one from the hand which has done most to advance knowledge in this line must be particularly welcome. A. W. Mayo-Robson (Brit. Med. Jour., Jan. 18, 1902), in reviewing his experience with 200 recent cases, illustrates with a fecundity of brilliantly massed facts that, in expert hands, it is as safe to operate for obstructive jaundice as for any common abdominal lesion. Unfortunately the paper is short and he devotes a major part of it to the diagnosis, which will always be the paramount problem in these cases. The following causes of chronic jaundice must be taken into consideration: (1) Common duct cholelithiasis; (2) chronic pancreatitis; (3) simple stricture of the common bile-duct; (4) inflammatory adhesions causing pressure on, or stenosis of, the hepatic or of the common bile-ducts; (5) hydatid disease of the liver pressng on, or discharging into, the bile-ducts; (6) gummata implicating the ducts; (7) chronic catarrh of the bile-ducts; (8) cancer of the common bile-duct; (9) cancer of the head of the pancreas; (10) cancer of the liver associated with jaundice due either to catarrh or to pressure; (11) cirrhosis of the liver; (12) other rare causes, such as aneurism of the hepatic artery or of the aorta, and other tumors of the liver, gall-bladder, pylorus, or kidney, pressing on or occluding the common bile-duct. It will be seen that surgery holds out a good prospect of cure in the first five cases enumerated; that medical treatment alone is advisable for causes 6 and 7, and that in the remainder with certain exceptions relief can be hoped for only from medical or surgical treatment. As in many other conditions, pain is the most valuable guide in establishing a differential diagnosis between these possible causes. A painless onset of chronic jaundice points to chronic catarrh due either to cancer of the liver or of the head of the pancreas, or both. On the other hand, pain in the upper abdomen, followed within twenty-four or thirty-six hours by jaundice, strongly suggests cholelithiasis. Here the jaundice is less intense and is pretty certain to be accompanied sooner or later by intermittent fever, chills and sweats, with very marked icteric fluctuations. Ascites is very suggestive of malignant disease; it points to it perhaps more strongly than any other single symptom. Other diagnostic anti-operative aids are as follows: Jaundice in cancer of the bile-ducts and head of the pancreas tends to become absolute; in almost every other condition it is variable. Fat in the feces and glycosuria, with very rapid wasting, are very suggestive of pancreatic trouble. If the anti-operative signs be difficult of true interpretation, those found after the abdomen is opened call for as much or more acumen. Adhesions in the neighborhood of a contracted gall-bladder suggest stones but this may be induced by a simple pyloric ulcer. If the head of the pancreas be swollen and harder than normal one should not too hastily pronounce it cancer; it may very probably be a simple chronic pancreatitis, curable by cholecystotomy. Again the discovery of enlarged glands does not warrant a gloomy prognosis, for discrete nodules are frequent in common-duct cholelithiasis and in chronic pancreatitis. If they are fused, however, the outlook is bad. The tumor composed of matted omentum and the viscera adjacent to an inflamed gall-bladder always presents a conundrum which aspiration even may not solve; it should not be pronounced malignant until the liver has been carefully inspected for nodules. The treatment depends on the diagnosis (1) If it be doubtful, an exploratory incision is indicated if the patient's general condition will permit. (2) If malignant disease be positively diagnosed, operation can, with some few exceptions, do but little good save when all the diseased tissue can be removed. (3) If gall-stones or any of the first five factors be diagnosed, operation is decidedly advisable if the patient be at all able to bear it. The two great dangers are hemorrhage and shock, accidents such as are liable to follow any severe abdominal shock. A study of the unsuccessful cases will no doubt reduce the mortality even lower than it already is; within the last year it has dropped in choledochotomy from 14.5 to 7.4 per cent. The anti-operative treatment of ordinary cases is in no way different from that given for a general laparotomy, but when a hemorrhagic condition is expected calcium chloride is fed in heroic doses, as this has been found to aid materially in limiting capillary hemorrhage by increasing the coagulability of the blood. An efficient aid in preventing shock is the use of a heated operating-table; another, even more important, is a decrease in the time of operating; exploration must be done in from ten to fifteen minutes, choledochotomy in a half hour; the more complicated operations should never take over one hour.

EYE, EAR, NOSE, AND THROAT.

Significance of the Tonsil.—It is almost universally believed that the faucial tonsil has a function to perform and should never be removed unless the operation is strongly indicated. F. H. Bosworth (Med. Rec., Jan. 11, 1902) has for many years held the view that the presence of a tonsil of any appreciable size means a diseased organ rather than a normal, functionating one and that there can be no ill results from its removal. The lacunæ are especially liable to harbor bacteria of all descriptions, and when the tonsil is swollen and enlarged it proves to be an excellent medium for systemic infection. In removal of the tonsils he always uses chloroform with children, but not to the surgical degree, and has never had any ill-effects. He has discarded the tonsillotome because it does not fit the tonsil and thorough extirpation is, therefore, not possible. The cold wire snare is preferable and can be more effectively used in removing a second portion. Furthermore, the danger from hemorrhage even in adults is, thus, almost entirely eliminated.

Aural Complications of Influenza.—Attention is called to the gravity of the inflammatory processes in the ear resulting from influenza by S. M. Smith (Phil. Med. Jour., Jan. 11, 1902). "Hemorrhagic otitis" has long been known as the distinguishing feature of otitic influenza. Mastoid implication is, however, present in all severe cases, a large number of which require operative interference, and meningitis, lateral sinus thrombosis, intracranial and extradural abscesses as sequellæ are encountered more frequently in each succeeding epidemic. It is well to examine the aural discharges for the presence of the bacillus of influenza. As regards treatment and prophylaxis, emphasis is laid on attending to aural complications at the very inception of the attack. Absolute rest in bed, with free diuresis, diaphoresis, catharsis and restricted diet, is followed by local measures, such as hot instillations, not necessarily medicated. Blood-letting in front of the tragus, to be effective, must be early. As soon as the membrana tympani shows any distention it should be incised. Hot irrigations should be followed by thorough drying and insufflation with aristol or nasophen.

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OF MEDICAL SCIENCE.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
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HEREDITY AND ENVIRONMENT.

In this issue of the Medical News, we present among our original articles a very full résumé of the recent interesting investigations and opinions with regard to the important subject of heredity. One really striking advance in our knowledge of this subject is the very different appreciation of the great influence of the ovum in heredity as compared with that of the spermatozoon. At the end of the eighteenth century and even at the beginning of the nineteenth, it was the custom to think that the spermatozoon was the most important generative element for the development of the new human being. The *homunculus* of which Sterne has so much to say in Tristam Shandy, the original germ particle which was to receive only its nourishment from the ovum, was supposed to be the preformed embryo as it issued from the male testicle. It was not too much to expect then, as was the habit in that day, that the father was the dominant influence in matters of heredity. Now almost exactly the opposite theory holds and the influence of the ovum is considered the prevailing factor.

This change of opinion is partly due to the fact that the significance of environment for the growing organism is better realized than was formerly the case. After all from the first moment of independent existence the germ of the new being is submitted to the environmental influences concomitant with its drawing its nourishment from the maternal tissues. Perhaps there is on the whole in our day a tendency to exaggerate the influence of maternal factors on the development of the organism and especially to demand too large a rôle for the ovum as the basic germ-particle, relegating the spermatozoon to the function of merely supplying vital stimulation. It must be remembered that the birth of twins is distinctly a family trait that can sometimes be traced for generations without a break. Multiple births used to be attributed almost entirely to the influence of the ovum and to certain inherent family tendencies. Statistics, however, show that, while multiple births recur in families, they follow the male side of a family as well as the female. It has often been noted that where twins have appeared in a first marriage, they also are prone to occur in a second marriage of the husband as well as of the wife. These facts would seem to indicate for the spermatozoon more actively developmental qualities than are sometimes allowed at present.

Beyond the sphere of the mechanism of inheritance comes the interesting question of the matter of heredity—what can be inherited? While most medical men seem to think that inheritance involves the direct transmission of qualities from parent to offspring, there is at present no scientist who would willingly concede the direct inheritance of acquired qualities. It is not unusual to hear it said that a heart lesion in a patient is not surprising as the family history shows that one of the parents had a similar lesion. Almost needless to say there is no such hereditary transference as this. Early degeneration of the kidneys is sometimes explained on the ground that a parent was suffering from chronic kidney disease at the time of conception. This is of course quite as inadmissible an example of *post hoc ergo propter hoc* as the former case. What may be transmitted in such case is not the pathological lesion itself, but a weakened habit of body that leaves the organism liable to disease early in life and that may well cause the descendant organism to be affected not unlike the parent if it has to go through stresses and strains in life. This phase of heredity Dr. Kiernan has discussed very fully in the article already referred to and very little if anything can be added to the conclusions he leads up to so lucidly.

The question of sexual heredity, because it involves the future of the race from its close con-

nection with the reproductive instinct and because it represents one of the most intricate problems in heredity, must continue to attract unfailing attention. Gradually the realization has been gaining ground that human beings are differentiated into sexes not alone by their sexual organs, but almost by every cell in their bodies. What is to all intents and purposes as far as sexual organs go, a man, may still possess many of the characteristics of the woman. There may even be the physical peculiarities of a distinct feminine waist line and womanly breasts with the other organs those of the male. Not infrequently Nature does not seem to quite make up her mind as to whether an individual is to be male or female. In this case it is not surprising to find in the male with certain easily recognizable female peculiarities of voice and gesture and posture and ways a tendency to homosexuality that shows how deep are the wellsprings of these seemingly superficial characteristics. Many of the unfortunate sexual perverts and inverts are of this class. They are much more to be pitied than to be blamed and this aspect of the question deserves the careful consideration of all well meaning men who are brought in contact with unfortunate creatures.

There are many things in the body of scientific observations that are gathering around the problems of heredity that are worthy of the attention even of the busy practitioner. Obscure questions in pathological development are illumined not a little by recent discoveries. We have gotten away from heredity as a cast-iron predisposition to certain definite results. As Dr. Kiernan says, "Heredity is an initial velocity," but many modifying forces are at work and life is the resultant of all the forces. "Heredity is a prophecy of what *may* be, not a destiny which *must* be." There are always in the subject's own hand, and especially in those of the guardians of the very early years, possibilities of guidance in development that may offset or greatly aid hereditary influences. This is especially true of the intrauterine life. In a word, we are not the creatures of mere circumstance, but the resultants of many factors that may under favorable conditions always be made to bring out the tendency to true evolution rather than degeneration.

HEPATOPANCREATIC CHOLECANATOMY.

It is impossible to appreciate the pathology of acute hemorrhagic pancreatitis, or, indeed, of almost any lesion in the hepatopancreatic region, without a clear mind picture of the anatomy of the parts. That these are multitudinous may be gathered from noting the review on a near page of Mayo-Robson's recent article on the "Surgical Treatment of Obstructive Jaundice," in which he endeavors to differentiate this condition from a dozen close-of-kin disorders. Also from a study of the recently-published work of Hans Kehr. His classification can very profitably be compared with that of Mayo-Robson. It is as follows: (1) Stone in healthy gall-bladder, cystic duct free. (2) Stone in a previously inflamed gall-bladder, ducts free, adhesions. (3) Subacute cholecystitis without stone, adhesions. (4) Acute cholecystitis with stone. (5) Acute cholecystitis in contracted gall-bladder, ducts closed. (6) Hydrops of gall-bladder. (7) Empyema of gall-bladder, stone in cystic duct. (8) Carcinoma of gall-bladder. (9) Stone in common duct, acute obstruction. (10) Stone in upper segment of common duct, chronic obstruction. (11) Stone in common duct near papilla. (12) Obstruction of common duct from pressure of tumor on other organs.

It will thus be seen that the disorders of these parts are as manifold as they are confusing. In a previous editorial it is stated that a frequent cause of pancreatic disorder is the abnormal flow of bile into that organ. Turning to the classic anatomy of the liver ducts we find them described as the hepatic, the cystic and the common. Two main trunks of nearly equal size issue from the liver at the transverse fissure and unite to form the hepatic duct, an inch and a half long, between the layers of the lesser omentum, where the cystic duct joins it at an acute angle to form the common duct. The cystic, the smallest of the three, is an inch and a half long. Its mucous membrane is thrown into a series of crescentic folds, from five to twelve in number; they form a sort of spiral valve. The common duct, the largest, is three inches long, has the diameter of a goose-quill, and is formed by the junction of the two smaller ducts. It descends behind the first part of the duodenum in front of the portal vein; to the right of the hepatic artery, it then runs for a short distance along the right side of the pancreatic duct and passes with it obliquely between the mucous and muscular coats. The two ducts open by a common orifice on the summit of a papilla (papilla of Vater) at the inner side and just below the middle of the descending duodenum.

The pancreatic duct, called the canal of Wirsung, begins near the tail of the organ, runs obliquely downward from left to right, receives

the ducts of the lobules and falls into relation with the common bile-duct. There is occasionally a small accessory pancreatic duct (the duct of Santorini).

Such is a general outline given by text-books. But in this region, as elsewhere, the anatomy is typal rather than typical. Dr. Geo. E. Brewer states that, while the position of the cystic and common ducts is fairly constant, much variation is to be found in the length of each; the cystic may vary from ½ to 2½ inches; the common, from 1½ to 4¾ inches. The duodenal orifice of the common duct averages 12 millimeters. The cystic duct, owing to the spiral valve of mucous membrane, rarely permits the passage of a probe; this is not true of the remaining ducts.

Dr. Brewer has shown that we must look to embryology to explain the existence of a direct canal from pancreas to liver. Early in fetal life a bud projects back into the posterior mesentery; from this the two pancreatic ducts develop. It is usually taught that the smaller Santorini is closed in 90 per cent. of all cases. In truth, however, it is *patent* in about this number. Although this duct usually opens directly into the duodenum, its mouth is frequently found in the common bile-duct. Any obstruction distal to this entrance would force bile into the pancreas. Another interesting path for the bile to this organ is described by E. L. Opie of Baltimore. For a variable distance in the gut-wall the two ducts are separated only by a diaphanous membrane. The cloacoduodenal orifice is much smaller than the opening of either duct, so it is the most frequent lodging-point for stones. The symptoms depend entirely on the size of the stone; a large one blocks all three openings and jaundice results; a small stone stops only the cloacoduodenal ostium and gives rise to the vague chain of symptoms by which we may or may not recognize pancreatitis.

"GRATTEZ UN AMERICAIN ET VOUS TROUVEREZ UN ANGLAIS!"

It should give the American profession a feeling of self-satisfaction to hear from others words of praise, particularly when they come from the supposedly uncharitable lips of an Englishman. It fills us with wonder that a stranger in a few days' observation could learn more interesting details of our customs, of our institutions, of our manners, good and bad, than we ourselves acquire in a lifetime. Best of all, it thrills us with genuine delight that there should be to-day such spontaneous good fellowship and harmony between British and American physicians as the quaint words above indicate.

The leading article in the *British Medical Journal* for January 25th by Dr. G. B. Ferguson, President of the British Medical Association, entitled "Notes on Some American Hospitals," affords us an interesting vista of ourselves as others see us. Any one who believes that British estimate of our virtues is below par should read this charming and delightfully naïve contribution. Dr. Ferguson is whole-heartedly generous, giving us oftentimes more credit than we may merit, but when he says that the Americans are always pleased to have commendation from a surgeon of the old mother country he speaks truly. There are some passages which are delightfully unique, reminding one of paragraphs from Humbolt's descriptions of aboriginal people. "They dress in canvas boots, linen trousers and coat, all sterilized, and wear a night-cap and long sterilized India rubber gloves. Commonly they take baths before an operation and shower baths after. They make their own laws regarding divorce, for instance; they may, as in the State of Maine, exclude alcoholic beverages. Marriage with the deceased wife's sister is legal —and the States may and do make the most diverse laws regarding medical matters and regulations of health. In New York you are reminded that the fine for spitting in the cars is £100."

In describing the operations seen, the author says, "The temperature was frequently 85° F. and it was necessary for one of the nurses to wipe all the faces at short intervals with a swab; this was done in a friendly way and commonly elicited smiles from both persons. * * * The nurses are treated with much deference and are not called 'nurse.' 'Miss C——, may I trouble you for another ligature?' was the mode in which they were addressed."

"The great characteristic of American hospitals is the worship of asepsis, which I have never seen so consistently and completely carried out anywhere else." His comment on drug dispensing is pleasing. "I was surprised to see how few and simple the drugs and mixtures were. There is none of the radiant polypharmacy which is indeed much more in evidence in Britain than in America. The simplicity and directness of the prescriptions told of strength and knowledge." Some therapeutic gems are as follows: "The bath was the great treatment in typhoid and I was told that any one who would withhold se-

rum might expect an early summons before the magistrate. When I expected much, I received nothing. American ingenuity is tired of splints and is working in the directness of asepsis and ingenious suturing. * * * At the Johns Hopkins, the greatest novelty to me was silver foil for the dressing next the skin. I have brought back with me some of their gloves and this foil and also hemostatic forceps (Halsted's mosquito) for my collegues to make trial of."

Dr. Ferguson was particularly happy over the mode of life of the nurses at the Presbyterian Hospital. "The whole flat roof is used as a 'solarium,' and hammocks, seats and couches were all about. After seven P. M. the roofs belong to the nurses, they play games there and no male person is allowed to be there or even look on. I asked one of the surgeons what they did; he said he did not know, but they enjoyed it very much. * * * The sum of my observations showed me that the Americans are careful and painstaking, rather than quick and showy surgeons. They make more use than most of scissors, both for separating and dividing, and they are really the premier aseptists of the world. They scout the idea of having learnt aseptic principles from the Germans and unanimously give the whole credit of their present arrangements and of their surprising perfection to one man only and to one pioneer hospital alone and the date was five or six years ago and the man's name is McBurney and that hospital is the Roosevelt. * * * My advice to others is to do as I did. A visit to America is in many ways a great eye-opener. Nowhere else have I looked on such a scene as New York by night. See the Americans at home and you will see some of the cleverest men and handsomest women in the world. Be just and friendly and cordial with the men of America and you will find that they are only waiting for an excuse to extend the hand of true and lasting friendship. 'Grattez un Russe,' said Napoleon very rudely, 'et vous trouverez un Tartare!' 'Grattez un Americain,' say I, 'et vous trouverez un Anglais!'"

ECHOES AND NEWS.

NEW YORK.

Hospitals in New York.—A correspondent of the *New York Times* calls attention to the unequal distribution of hospitals on Manhattan Island. He writes: "The Nineteenth Ward of the Borough of Manhattan, it seems, is to have another hospital and dispensary added to its already large number of similar institutions. The Manhattan Maternity Hospital and Dispensary is to be located on the plot of ground made up of 327, 329, 331, and 333 East Sixtieth Street. Of late years this section of our city has become veritably the Mecca of benevolent enterprises in this line, for reasons not easy to explain unless for the convenience of those who foster them. They are also aggregated within comparatively a small area—one bounded only by Fortieth and Eighty-third Streets, Fifth Avenue, and the East River. In this space there are seventeen; all but two have outdoor departments, and three have maternity departments."

All Hospital Patients Vaccinated on Admission.—Dr. Brannan, President of the Board of Trustees of Bellevue and Allied Hospitals, sent to Bellevue last week an order to the effect that all patients received at Bellevue and the allied hospitals should be vaccinated on their admission to the institutions, except cases in which the condition of the patients was very weak.

Milk Producers for Reform.—The Directors of the Five States Milk Producers' organization, in regular session, held at Binghamton, N. Y., February 7th, again declared their willingness to coöperate in all efforts to prevent impure or unfit milk being sold in New York City. They arraigned the present method of the distribution of milk from producer to consumer as responsible for most of the evils complained of, as unbusinesslike and wasteful; as making reform difficult, if not impossible, and as intolerable to both producer and consumer; and invited correspondence and cooperation with health officers and all other parties interested in furnishing pure, whole milk to consumers in New York City.

The Reunion of the New York Profession.—At the recent meeting of the Medical Society of the State of New York, the retiring President, H. L. Elsner, M D., was made Chairman of a Committee of five to confer with a committee of equal number representing the New York State Medical Association for the purpose of formulating a plan by which the regular profession of the State of New York might be united. Dr. Elsner has selected as his associates on this Committee Dr. Abraham Jacobi of New York, Dr. Albert Vander Veer of Albany, Dr. A. M. Phelps of New York and Dr. George Ryerson Fowler of Brooklyn.

Classification of Pulmonary Tuberculosis.—The following preamble and resolutions were adopted by the New York Academy of Medicine at its meeting held February 6th, and copies were sent by instruction to the Treasury Department, to the Surgeon-General of the Marine Hospital Service and to the Secretary of the New York State Medical Society:

Whereas, The Treasury Department of the United States, upon recommendation of the Surgeon-General of the Marine Hospital Service, has recently decided to classify pulmonary tuberculosis with dangerous contagious diseases, be it

Resolved, That the New York Academy of Medicine deeply deplores this decision, which is not based either on clinical experience or on scientific experiments.

Resolved, That the Academy considers the exclusion of non-pauper tuberculous immigrants and consumptive aliens visiting our shores, unwise, inhumane, and contrary to the dictates of justice. Be it further

Resolved, That, while the Academy is convinced of the communicability of tuberculosis and urges all possible precautions against the spread of the disease occasioned by sputum and tuberculous food, the Academy is opposed to all measures by which needless hardship is imposed upon the consumptive individual, his family, and his physician.

Woman's Hospital. The Governors of the Woman's Hospital recently sold their old site at Lexington Avenue and Fiftieth Street to the New York

Central Railroad for $400,000. They have now purchased a new location for the Hospital on 109th Street east of Amsterdam Avenue.

Policemen Vaccinated.—On Thursday of this week, by order of Police Commissioner Partridge, all the policemen of Greater New York reported to their respective station-houses and were vaccinated.

PHILADELPHIA.

Contagious Diseases Increase.—During the week ending February 8th there were reported 254 new cases of typhoid fever and 110 cases of smallpox. This is an increase of 53 cases of typhoid and 37 of smallpox over those of the previous week. Compulsory vaccination is still being carried on in many of the lodging-houses of the city. Dr. John V. Shoemaker, President of the Department of Charities and Correction, has recommended to the Department of Public Safety the discontinuance of quarantine for smallpox. He says in part: "In places from which a case of smallpox has been removed I consider sunshine, fumigation, and plenty of fresh air much more effectual as remedies than the close and continuous quarantining of houses. Shutting people up in the house in the minds of many experts is liable to increase rather than decrease the scope of an epidemic." Regarding the report on February 3d of the committee appointed by the Director of Public Safety to determine if proper means were being employed to stamp out smallpox, Dr. Shoemaker, Chairman, says: "Our report stating that the Municipal Hospital is equipped with all approved means of caring for smallpox, that a corps of competent physicians is in attendance and that the patients are well quarantined is founded on personal observation and investigation made by members of the committee." The committee, which includes Drs. Shoemaker, Tyson, Hare, Anders and Henry, also states that the seriousness of the epidemic was not such as to alarm the residents of the city and that adequate precautions in the way of house-to-house vaccination, isolation, quarantine, disinfection, etc., are being taken. Vaccination is again urged as the only thorough remedy.

Druggists to Combine Against "Cut-rate" Stores.—A combination of the independent retail drug-stores of the city is being formed with a capital of $1,000,000. It is the purpose of the trust to acquire all the well-established independent stores, retaining the proprietors as managers at a guaranteed salary and commission, and so fight the larger "cut-rate" establishments. It is reported that more than 100 druggists have already joined the combination.

Domestic Animals Slaughtered to Prevent Spread of Smallpox.—A despatch from Wilkesbarre states that 2,000 dogs and cats are to be killed in Plymouth township. More than 40 cases of smallpox are now being cared for and the Board of Health has decided that the large number of cats and dogs are spreading the disease.

Poem by Dr. Weir Mitchell.—At the celebration of Washington's Birthday by the University of Pennsylvania, Dr. S. Weir Mitchell will read a poem.

Hatfield Prize for 1903.—The Nathan Lewis Hatfield Prize of $500 is to be awarded by the College of Physicians of Philadelphia to the author of the best essay on "The Relation between Chronic Suppurative Processes and Forms of Anemia." Competition is open to members of the medical profession and men of science in the United States. Particulars may be obtained from the Chairman, Dr. J. C. Wilson, College of Physicians, Philadelphia.

Dr. Welch for President of Society.—It is announced that the Philadelphia County Medical Society will present as its candidate for the presidency of the Medical Society of the State of Pennsylvania, Dr. William M. Welch, the well-known authority on contagious diseases.

College of Physicians.—At the meeting of February 5th Dr. D. L. Edsall reported "A Remarkable Case of Coma apparently due to Acid Intoxication *sui generis*." Dr. Edsall prefaced his remarks by a discussion of the various phases of acid intoxication and the accompanying conditions. In one group of cases acetonuria is the only manifestation. In a second group acetonuria is accompanied by diaceturia and perhaps oxybutyric acid. Gastro-intestinal disturbances accompany each but are not marked. There may also be slight urinary evidences of acid intoxication. In a third group there is marked urinary evidence of acid intoxication. The case reported was that of a man previously healthy who was rather suddenly seized with vertigo which was followed by coma. That condition lasted for eleven hours, there being present the symptoms and urinary signs of acid intoxication. Paralysis was not present. A notable feature was the very marked odor of acetone about the patient. Treatment was the intravenous injection of three pints of a two-and-one-half-per-cent. solution of sodium bicarbonate, this being repeated once. Apoplexy, uremia, alcoholism, and diabetic coma were each ruled out as the cause of the coma and the case diagnosed as one of acid intoxication *sui generis*.

Adiposis Dolorosa in a Male.—Dr. F. X. Dercum exhibited this patient, stating that he was the fourth male of the entire 25 cases of the disease reported. Fifteen years ago the man suffered from a febrile attack and soon afterward began to take on deposits of fat. The back, arms and legs and later the sides and abdomen were involved. The fatty areas are very painful to pressure, are easily bruised and ecchymotic areas spontaneously appear. Epilepsy has also appeared as a complication of the case. Dr. Dercum spoke of the pathological findings in one case coming to autopsy. There was found a neuritis, disease of the thyroid gland, and sclerosis of the columns of Goll. Dr. Dercum also exhibited a second patient, a female, in whom the disease was of very slow progress. An examination of the eye-grounds by Dr. de Schweinitz revealed no changes except a circinate retinitis which he states to be in no sense a symptom of any one disease.

A Recent Research on Snake Poisons.—Drs. S. Weir Mitchell and Simon Flexner read papers on this subject, Dr. Mitchell having suggested the experiments and Dr. Flexner conducting them. While not yet completed Dr. Flexner was able to outline some results determined thus far. The research was conducted with a view to interpreting the blood phenomena caused by venoms. Dr. Flexner first gave a brief explanation of the principles of bacteriolysis and hemolysis in general and then detailed the results of their experiments to determine the hemolytic properties of venom. It was found that venous hemolysis takes place to a varying degree as the blood of different animals is susceptible to venom in a varying degree. Venom acts in a maximum way upon one kind of corpuscles. The general conclusions reached were as follows: (1) Venom is a very complex compound and contains a large number of intermediate bodies but no complement. (2) If venom contains a nerve poison, that substance unites chemically with nerve-cells to produce its effect. (3) The rapid decomposition of bodies dead from venom poisoning is due to the action of the venom upon the blood. The serum complement of the blood is fixed by the venom and as a consequence the bacteritic quality is lost. The bacteria thus rapidly multiplying when not inhibited by the serum cause hasty decomposition.

(4) Experiments with antivenin showed it to be a physiological and a chemical antidote to venom.

Brain Tumor Localized by the Roentgen Rays.—An exceedingly interesting communication was that of Drs. Charles K. Mills and G. E. Pfahler. It included the report of a case of brain tumor localized clinically and by the Roentgen rays. The clinical diagnosis of a subcortical tumor mainly in the parietal region and extending to the internal capsule was made. Dr. Pfahler, Assistant Chief Resident Physician at the Philadelphia Hospital, then made skiagraphs of the patient and obtained a shadow which exactly confirmed the clinical localization of the tumor. Operation was followed shortly by death. Autopsy revealed a large fibrosarcoma in the aforementioned location, only a portion of the tumor having been removed at the time of operation. Experiments upon cadavers were then made by Dr. Pfahler, the results being extremely gratifying. Tumors of various sorts were placed within fresh brain substance or brain that had been hardened and after closing the skull skiagraphs were made. The conclusions reached after several series of experiments were as follows: (1) Fibrosarcomata and perhaps other tumors can be photographed in the living subject and their location shown. (2) Other varieties of tumors can be photographed in their most usual locations. (3) Other abnormalities in brain tissue itself can be photographed. This may in certain cases be of value in diagnosing cysts, hemorrhages, etc. (4) The most careful technic and regard for the special conditions in each case must be observed. (5) Shadows obtained in normal portions of the brains studied show that the utmost care in interpreting any shadow obtained is necessary.

Obituary.—Dr. Adam Trau, for many years on the medical staff of the German Hospital, died in that institution February 7th of paralysis. Dr. Trau was born in Germany sixty-two years ago, graduated at the University of Pennsylvania, and, after serving as naval surgeon during the Civil War, practised in this city.

Dr. W. Murray Weidman, of Reading, died of angina pectoris February 7th at the age of sixty-five. Dr. Weidman was the local representative of the State Board of Health, was prominent in local and State medical societies, and was one of the best known physicians in eastern Pennsylvania.

CHICAGO.

Health of Evanston.—According to the health report submitted a few days ago to the Council, Evanston has been healthier during the last year than for any year since 1896. There have been 174 deaths, which, in a population of nearly 20,000, means an average death-rate of 8.65 per thousand. The largest number of deaths was among infants under one year old, and the next among persons between twenty and thirty years of age. There were three deaths of persons over ninety. Tuberculosis had the most victims, with heart disease and pneumonia next. The use of lake water is held largely responsible for the prevalence of typhoid fever. Dr. W. R. Parkes, the Health Officer, discourages the use of artesian water, as the jugs are filled and refilled without thorough washing. As it is impossible to tell from day to day just what the condition of the lake water is, he concludes that absolute safety lies only in boiling the water.

Cook County Hospital Staff.—New officers were elected by members of the attending staff of the Cook County Hospital at its regular annual meeting recently held. Information that an attempt might be made to effect a new interpretation of the rules and allow the old officers to hold over until next year brought about a large attendance. The following officers were nominated and elected: President, Dr. Arthur R. Edwards; Secretary, Dr. L. Blake Baldwin. Dr. Edwards has been on the professional force at the institution for twelve years. He is professor of principles and practice of medicine and clinical medicine in the Northwestern University Medical School. He succeeds Dr. Denslow Lewis. The Executive Committee will be appointed later and it is expected that new rules will be considered and passed regulating the management of the physicians and internes.

New Hospital.—Preparations are being made for the erection of a hospital for the Swedish Mission Association in Lake View. It is said that the hospital will cost about $50,000 when completed.

Coeducation Discussed at Rush Medical College.—The matter of coeducaton was discussed by members of the faculty at a recent meeting in a very vigorous manner and, notwithstanding the opposition of certain members to coeducation, a resolution was adopted recommending the admission of women to all branches of the medical department of the University of Chicago.

High Retraction Ring as a Contraindication to Version.—Dr. Rudolph W. Holmes read a paper on this subject before the Chicago Medical Society, February 5, 1902. He said that the retraction ring as a product of normal and abnormal labor is not given a proper recognition in American text-books; it is considered so unimportant that hardly a paragraph is given to the discussion of the ring, threatened rupture, etc., and its contraindication to version. The reports of two cases are given, occurring in a European clinic, in which version was done with a high retraction ring at the umbilicus; in one case death resulted from rupture of the uterus; the other patient fortunately escaped.

Anatomy of the Retraction Ring.—In the nonpuerperal uterus, and probably up to the moment of labor, the division of the uterus into body and cervix obtains. In labor, however, such is not tenable—here the upper and lower uterine segments are the divisions of the uterus, the former being made up of a part of the uterine body, the latter made up of cervix and that part of the body between the os internum and the retraction ring plus the cervix. Three anatomic factors in late pregnancy may often denote the potential (proximate) site of the future ring—the vein of Bayer, the "line of firm peritoneal adhesion," *i.e.*, the peritoneum of the uterovesical fold passes onto the uterus near the os internum, is loosely attached to the lower uterine segment, and becomes closely adherent near the future site of the ring, and the densely woven structure of the muscle of the upper segment and laminated structure of the lower segment with a considerable excess of connective tissue. The muscular arrangement of the two segments is more evident in advanced labor, and the segments are separated by a distinct rim or ledge—the retraction ring.

Diagnosis of the High Ring.—In every normal labor one should attempt to find the retraction ring. With a slight rise in normal labor it may be difficult or impossible to discover it; but the more one looks for the ring late in normal labor the more likely will he be to find it under physiological conditions and the more positively he will make it out in pathological circumstances. When some obstruction exists the ring will be two or more inches above the pubes—the higher it rises the more will these symptoms be present. First, increased sensitiveness of the lower segment, gradually becoming more marked until actual pain is present in contraction and also in intervals of uterine activity; palpation will bring out this pain. The round ligaments will be large, tender, and much stretched. The ring will be felt as a distinct groove running obliquely across the uterus (abdomen)—as the ring rises in spare women it may be clearly seen. The fetus may be more

clearly outlined in the interval of contractions through the much attenuated lower segment. Examining internally we may find the thin segment bounded at its upper border by a distinct ledge. With these findings, the pulse will be more frequent, temperature raised, and in extreme cases we may have the woman complaining of the impending evil. In a goodly proportion of cases the membranes will have been ruptured for some time. The ring must be differentiated from a full bladder, the success formed by the depressions of the neck being filled by uterine constrictions, lower border of the placenta, and large fibroids of the anterior wall, and in certain cases of twin pregnancies. Each of these will be excluded by a careful consideration of the characteristics peculiar to the several conditions.

Mechanics of the Retraction Ring.—At the beginning of labor the potential site of the ring is behind the pubes. As labor progresses the upper segment contracts and retracts; the lower segment dilates and stretches. In the course of normal labor retraction occurs in almost the same ratio as the child is expelled from the uterus, so the lower segment is only slightly stretched—that is, the ring mounts usually not more than two inches. In obstructed labor retraction of the upper segment goes on more rapidly than expulsion, or expulsion may be impossible from insuperable obstruction; here, as retraction of the upper segment diminishes that part of the uterine cavity as made up by it, there must be a compensatory stretching of the lower segment to give the fetus a uterine covering; this thinning permits the ring to mount to the umbilicus or even above it, the higher the rise of the ring, the more imminent is rupture of the uterus.

Therapeutic Considerations.—With a certain dogmatism one may state that the higher the ring rises with the resultant thinning of the lower segment, the more strictly must one draw one's lines against performing version. Mere elevation of the ring alone cannot be solely one's criterion—one must consider the general condition of the uterus at the moment of the tentative attempt. A high ring with intact membranes at the moment of operation will offer better results than a lower ring with membranes ruptured for a protracted period. When in doubt of the advisability of performing version prepare for the operation, pass the hand into the lower segment—if the fetus is tightly grasped by the uterus, if the segment is very thin, and the ring high, alter the plans and try tentatively the axis traction forceps. If they fail after ten tractions remove the instrument and perform craniotomy. If the child be dead perform craniotomy as the operation of election. Do not perform version on a dead baby long after the membranes are ruptured. In transverse cases perform decapitation or embryotomy as the case indicates. Decide each case on its merits and give the mother the most certain procedure; the baby is usually dying or dead so should have little consideration beside the welfare of the mother.

Exophthalmic Goiter.—Dr. Edward F. Wells read a paper with this title. After alluding to the interesting history of the affection, he spoke of the causation. The essential cause was unknown, but the symptoms are clearly due to an excessive or perverted action of the thyroid gland, a true hyperthyroidism. This seems conclusively proven from the facts, that there are evidences of excessive activity of the thyroid gland, and that similar symptoms may be and often have been produced by excessive thyroid feeding; and also because myxedema, which is the exact opposite pathologically and symptomatically of exophthalmic goiter, is clearly due to a thyroid insufficiency and is relieved by the proper exhibition of thyroid extract. The symptomatology of exophthalmic goiter in typical cases is clearly cut and pathognomonic and even in atypical cases is sufficiently distinctive to almost always allow of a correct diagnosis. The prognosis varies remarkably in the different cases. Death occurs in about 12 per cent. of the cases, but this mortality appears almost exclusively in those cases which have a rapid development of severe symptoms, especially acute nervous and mental symptoms. The ordinary case does not usually die from the effect of the disease, but the course is prolonged usually for many years, and is marked by relapses and recovery is not perfect, that is, more or less nervousness and thyroid enlargement remain permanent. Thyroid atrophy, with consequent myxedema, is a sequel in some few cases. After mentioning the ordinary measures of régime, diet, etc., attention was called particularly to a few therapeutic measures, each of which produces a definite effect and which has appeared useful in the treatment of this disease, according to the experience and observation of the speaker. Of these codein was placed at the head of the list. This agent may be given in doses ranging from one-quarter to one grain, three or four times a day and continued for many weeks or months, preferably with occasional intermissions for a few days. Codein is a most useful agent in relieving the nervous and mental excitement which is usually present, but it appears to have an effect beyond this, inasmuch as its use is usually followed by gradual slowing of the pulse and improvement in the gastro-intestinal symptoms. Adrenalin hydrochlorate, in the standard solution of 1-1000, may be prescribed in doses of from five to ten drops three times a day, and this will be followed by an evident toning up of the paretic capillaries. Digitalis or strophanthus may also be used. The removal of a portion of the enlarged thyroid, or ligation of the thyroid arteries, is the only therapeutic measure which approaches the disease directly. Partial thyroidectomy is a dangerous operation and is often followed unexpectedly by death in a few hours or days. It should therefore be reserved for the most rebellious or severe cases in which these extraordinary risks may be assumed in the presence of extraordinary dangers.

CANADA.

Winnipeg Vital Statistics.—During the month of January there were registered in Winnipeg 97 births, 55 males and 42 females; deaths, males 30 and females 13; marriages 54.

Donation of Books to the Ontario Medical Library.—Dr. Howard A. Kelly has made a handsome donation of books selected by Dr. N. A. Powell, curator of the O. M. L. A., from the books of the late Dr. Sweetman. It is understood that the cost of these was in the neighborhood of $1,200.

Toronto Nursing-at-Home Mission.—During the past year this institution has looked after 841 patients and the nurses have made 5,406 visits. The receipts for 1901 amounted to $1,365.79 and the disbursements were $1,241.69. The sum of $1,189.20 has already been subscribed toward the building fund of a new home.

Smallpox in the Province of Quebec.—Dr. Elzear Pelletier, Secretary of the Provincial Board of Health, has handed out a statement showing that during the year 1901 there were 5,069 cases of smallpox in that Province. The cases occurred in 276 localities in 55 out of 73 counties in the Province. The percentage of deaths, however, was very small, being about one per cent. Three hundred and twenty-four municipalities have reported to the Board that they have adopted the vaccination by-law recommended to them by the Board of Health.

New Hospital Opened.—The Chipman Memorial Hospital was opened at St. Stephen's, New Brunswick, on the afternoon of February 4th by the Hon. L. J.

Tweedie, Premier of the Province. The hospital is finely situated on the banks of the St. Croix River just below the town and was formerly the Chipman homestead. The building and grounds, fully equipped with all modern appliances, has been donated to the town by Lady Tilley and other heirs of the Chipman estate. It has accommodation for twenty patients and on the day it was opened the men of St. Stephen's made it a contribution of $1,000.

Toronto Hospitals Crowded.—St. Michael's Hospital, Toronto, and the General Hospital, same city, are full to overflowing, the former being so congested that the corridors have been pressed into service and for the present no new admissions are being made. There are at present in the Toronto General Hospital 325 patients, the greatest number in residence at one time in its history. This hospital has the greatest number of beds of any hospital in Canada, having accommodation for 400. The large majority of the cases are surgical and operative, the medical wards being far from full. Grace Hospital has just completed one of the finest operating theaters on the continent at a cost of $10,000, the gift of Lieutenant-Colonel Pellatt.

Protestant Hospital for Insane, Quebec.—The annual meeting of the Board of Governors of this institution was held last week, when the superintendent, Dr. Burgess, made an important proposal to the effect that he be allowed in future to accept any applications for voluntary admission to the hospital that might be made to him, without conforming to the Government requirements regarding admission to the institution. This would make the institution a hospital in every sense of the word. The annual report contained the following statistics: In residence, January 1, 1901, 192 men and 176 women, total, 368. Admitted during the year, 86 men and 64 women. Discharged as recovered, 25 men and 20 women; discharged as improved, 8 men and 8 women; discharged as unimproved, 3 men and 6 women. Died during the year 24 men and 11 women. Remaining in residence at the close of the year, 217 men and 194 women, total, 411.

Proposed Consulting Board of Health in Montreal.—Owing to the fact that the Hygienic Committee of Montreal is generally made up each year of members of the City Council who are not conversant with health matters, Alderman Ames, who has always taken a deep interest in the health of the city, proposes a consulting board to consist of four of the city physicians and a practical plumber. It is thought that in this way something could be done to curtail the three thousand odd unnecessary funerals taking place in Canada's great commercial metropolis each year.

Doctors will Decide an Interesting Legal Point.—A medicolegal case of interest is before the courts in Montreal. A clergyman recently died in that city leaving an estate of $95,000, which he had inherited from his first wife. Shortly after his demise, his widow gave birth to a child, a son, who died about six hours after his birth. The little child had been baptized before its death, but it is on its viability that the case hinges. If he was born viable, he became his father's heir. The other heirs of the estate claim that the child was not born viable and the medical testimony is awaited with considerable interest.

The Tuberculin Test.—At the annual meeting of the Shorthorn Breeders' Association, held in Toronto on the 4th inst., the following report of a special committee was adopted: "We, the members of the Dominion Shorthorn Breeders' Association, at our annual meeting, resolve that the tuberculin test is unreliable, unnecessary, and in many cases injurious, and that we urge the discontinuance of the compulsory use of tuberculin by the Dominion Government Department of Agriculture; and we also fail to see the object now of ninety days' quarantine, as there is no contagious disease in Great Britain requiring its enforcement for such a length of time."

Annual Meeting of the American Medico-Psychological Association at Montreal.—This Association will hold its annual meeting, the fifty-eighth, in Montreal on June 17th, 18th, 19th and 20th; the Windsor Hotel will be the headquarters of the Association. The annual address will be delivered by Dr. Wyatt Johnston of McGill University, the subject will be "The Medico-legal Appreciation of Trauma in Its Relations to Abnormal Mental Conditions." Amongst other Canadians who will contribute papers are Dr. Daniel Clark of the Toronto Asylum, Dr. Russell of the Hamilton Asylum and Dr. R. M. Bucke of the London Asylum.

GENERAL.

Eddyism and the Kaiser.—The last addition to the 476 varieties of quackery said to thrive in Berlin is Christian Science. It is the sensation of the moment. The comic papers caricature it, the weighty religious periodicals marshal polemics against it, and the daily press prints much descriptive matter regarding what is called "the latest American importation," saying it was only brought over after it had been "worn out in the United States." The German followers of the American Christian Science community in Berlin number about 200 persons. Emperor William is so incensed at the Spiritualist movement that he has issued a notification, through the "North German Gazette," that all persons in any way connected with Spiritualists, faith healers, Christian Scientists, or kindred cults will hereafter be rigidly excluded from the imperial Court. The Emperor expressed strong disapprobation of prayer healing, but agreed that Herr von Windheim, the Police President, must make no martyrs.

Smallpox Threatens Coronation.—With the increase in the number of cases of smallpox, London's population is flocking to insurance offices in order to get insured against the epidemic. All classes are taking advantage of the underwriters' charge for vaccinated and unvaccinated risks, though for the East End districts the premium is as high as 21 shillings. Some financial men have been insured for as much as 7,000 pounds against the risk of catching smallpox, but the average policy is about 500 pounds. It is feared that May or June will be the worst month of the epidemic. If this is true, it is a serious menace to the success of the coronation festivities.

An Antivaccinationist Convinced.—The Boston Board of Health last Saturday announced that Dr. Immanuel Pfeiffer was ill with smallpox in its worst form at his home in Bedford, and probably could not live. Dr. Pfeiffer was one of the strongest opponents of vaccination in Massachusetts, and recently appeared before the Legislative Committee to urge repeal of the compulsory vaccination law. Having the courage of his convictions, he went to Galloupes Island and completely exposed himself to smallpox with the above results.

Victims of Russian Railroads.—A recent report of the Russian Minister of Ways of Communication shows that in 1899 there were 4,447 accidents, or an average of a little more than 12 per diem. In all, 1,226 persons were killed and 6,933 injured.

British War Scandals.—It is understood that a contract for meat was first resold at £10,000 premium, and then at £40,000, while Cecil Rhodes and the De Beers group handed over £200,000, and thus finally secured the privilege of supplying the troops in South Africa with fresh meat. These figures are likely to add

fuel to the fire of public indignation which threatens to center around the British Secretary for War. Truly blood is thicker than water. It now appears that the embalmed-beef episode of our Spanish-American war need not be regarded as the result of unbridled avarice running riot in a young nation that lacked the moral restrains of long established civilization. It may have been only the outcroping of a family trait.

Banquet in Honor of Dr. Gregory.—The medical profession of St. Louis, under the auspices of the St. Louis Medical Society, will give a testimonial banquet to Dr. E. H. Gregory, who for fifty years has been an active teacher of medicine. The banquet will be held at the Planters House the early part of April. A large number of guests will be invited, including all the ex-presidents of the American Medical Association out of compliment to Dr. Gregory who was president of the Association in 1887. A Committee composed of Drs. F. J. Lutz, N. B. Carson, J. P. Bryson, C. H. Hughes, W. B. Outten and H. W. Loeb has the matter in charge.

American Hospital in Paris.—There is to be built in Paris an American hospital, where all citizens of the United States will find in case of illness careful medical and surgical attention free of any charge. Funds for the purchase of land, for the erection of buildings, for the complete fitting up of a model modern hospital and for the endowment of the same are available. In fact, the land has already been bought, and for several months American architects have been working on the plans.

Severed Twins.—On Monday last Professor Doyen of Paris did an operation upon the Hindoo twins who were united after the manner of the famous Siamese twins. The little patients were under chloroform for about twenty minutes and the operation was a success, although their condition is not promising, owing to previous tuberculous infection.

The Hugo Prize.—This prize, amounting to one thousand francs, for the best work upon a subject pertaining to the history of medicine, written in the French language within the past five years, has been awarded by the Paris Academy of Medicine to Dr. Mélanie Lipinska of Warsaw for her work entitled "History of Women Physicians from the Middle Ages to the Present Time." With the prize is conferred the title Laureate of the Academy of Medicine.

The Red Cross Society.—The Seventh International Conference of the Red Cross Society will take place at St. Petersburg in May, 1902.

Annual Meeting.—The eighth regular annual meeting of the American Laryngological, Rhinological and Otological Society will be held in Washington, D. C., June 2, 3 and 4, 1902.

Obituary.—Dr. W. Murray Weidman, one of the most eminent physicians of Reading, Penn., died suddenly of heart disease on February 8th, aged sixty-five years. He was at one time President of the Pennsylvania Medical Society, and was associated with all the leading medical fraternities in the country. He served through the Civil War.

Dr. Alonzo Boothy, a widely-known physician and gynecologist of Boston, died suddenly of heart disease on Saturday, February 8th.

Dr. James Hine, died February 11th at New Milford, Conn. Dr. Hine had been ill for a month, the result of injuries received from a fall. He was born in New Milford seventy-nine years ago and had lived there all his life. He was educated at the University of Burlington, Vt., and afterward at New York University, whence he was graduated with the degree of doctor of medicine. This profession he practised until his retirement some years ago.

OBITUARY.

PAUL F. MUNDE, M.D., LL.D.

DR. PAUL F. MUNDÉ died at his home, New York City, on the evening of February 7th, after an illness which has been serious for two months. During the last few weeks he suffered greatly, his ailment being an affection of the heart which has troubled him for ten years.

Dr. Mundé was a native of Dresden, Saxony. His father was Charles Mundé, and his mother Bertha, daughter of Baron von Hornemann, Counsellor of the King of Saxony. Implication in the Dresden uprising of 1849 forced the father to leave Saxony. The boy, Paul, began his education at the Boston Latin School, and entered Yale Medical School in 1863. He became a medical cadet in the Union Army in 1864, and after six

months of service in the field entered Harvard Medical School, from which he was graduated in 1866. The same year he went to Germany and served as volunteer assistant surgeon in the Bavarian army during the war of 1866.

Once more mustered out of the active service the young surgeon, just turning his majority, found at Würzburg the influence that was to shape his life's work—Professor Scanzoni, with whom he remained until 1870, acting as assistant to that remarkable gynecologist. The outbreak of the Franco-Prussian war drew him for the second time into the Bavarian army. He was a battalion surgeon, with the rank of first lieutenant, when the Emperor William bestowed upon him the Iron Cross for heroism in rescuing patients from a burning hospital in Paris.

Receiving the degree of Master of Obstetrics at Vienna in 1871, Dr. Mundé spent the next two years at various European hospitals, including those of Heidelberg, Berlin, London, Edinburgh, and Paris. In 1873 he came to New York, where he resided until his death.

From 1874 to 1892, Dr. Mundé was editor of "The American Journal of Obstetrics," raising the magazine to a position of preeminence in that specialty. He was one of the founders of the American Gynecological Society, becoming vice-president in 1884, and president in 1898. He was president of the New York Obstetrical Society from 1886 to 1888, and in 1887 was elected vice-president of the British Gynecological Society. He was a member of the German Gynecological Society, a corresponding Fellow of the Obstetrical Societies of Philadelphia, Leipsic, and Edinburgh, and honorary president of the International Congress of Obstetricians and Gynecologists. He was a member of the Medical Society of the County of New York, and a Fellow of the New York Academy of Medicine. In 1897 Dartmouth conferred on him the degree of LL.D.

At the time of his death Dr. Mundé was gynecologist to the Mt. Sinai Hospital, Consulting Gynecologist to the Skin and Cancer Hospital, and Consulting Obstetrician to the City Maternity Hospital. He was a member of the Union League, Riding, and South Side Sportsman's Club.

Dr. Mundé was the author of several authoritative works, among the best known being "Minor Surgical Gynecology" and "A Practical Treatise on the Diseases of Women," and he published more than one hundred contributions to current medical literature.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, February 1, 1902.

THE LIGHT THAT FAILS—THE "THOROUGH" SYSTEM IN CANCER—ELECTRICITY IN THE TREATMENT OF CANCER—THE ROYAL ARMY MEDICAL CORPS IN SOUTH AFRICA—THE ARMY NURSING SERVICE.

The light treatment of lupus and other skin affections which was introduced into this country from Copenhagen only two or three years ago has already *implanted* itself firmly, as far as apparatus is concerned, in many of our large hospitals. In London the real pioneer was Mr. Malcolm Morris, although the London Hospital, which numbers among its managers a man who has a highly cultivated instinct for advertisement, has contrived to get for itself whatever credit may be due to priority in this particular field. If there is any one within the limits of the three kingdoms who has not heard of the lamps presented to the London Hospital by Queen Alexandra and of the interest taken by that gracious lady in the patients for whose treatment they are intended, the fault does not lie with the authorities of the Hospital. The Queen being herself a Dane, and having also, be it whispered, experienced in her own royal person a little of the disfiguring handiwork of the tubercle bacillus, is naturally interested in the treatment, and the London Hospital people have worked that interest for all it is worth. They have publicly stated that they have patients waiting their turn who have no chance of being taken in hand for two years. As to their results with the light little has yet been heard, though the public is skilfully given to understand that they are marvelous. Dr. Sequeira, who is in charge of the department has, however, reported some promising work with the X-rays in cases of rodent ulcer. Mr. Malcolm Morris and others brought their results with light and the Roentgen rays before the last annual meeting of the British Medical Association, and on the whole as far as they went they were encouraging. But it is noteworthy that our British workers did not speak of either method with the confidence of the Copenhagen and Vienna physicians. Except in cases of very superficial disease affecting a limited area in easily accessible regions anything like a complete cure was practically unknown, though the improvement was very striking. Now the first enthusiasm always aroused by a new method of treatment is beginning to pass away, and the men who are ripest in judgment and experience show a disposition to hint a doubt if not to hesitate dislike. The cases of "cure" are relapsing and the "improvement" is disappearing. Even the X-rays, from which better things were hoped, are not fulfilling the promise of their early trials. The situation reminds one somewhat uncomfortably of the tuberculin "fizzle." It is difficult, however, to believe that therapeutic methods of such undoubted activity are incapable of producing a permanent effect. No echo of discouragement comes from Copenhagen, and there is still room for hope that the methods for some reason have not yet had fair play in this country. It should be said, however, that there appears to be no enthusiasm about the light treatment in Germany. This, of course, may be explained by the well-known unwillingness of our Teutonic friends to find good in anything that comes out of the Nazareth of a foreign nation. But on the other hand the results of the treatment have apparently not been particularly brilliant in France. Obviously the safest attitude of mind in regard to the whole question at present is one of expectancy.

The cancer question is agitating men's minds here in various directions. The money required to carry out the scheme of organized research to which reference was made in a previous letter is not yet forthcoming. The promoters thought they had caught their millionaire, but when he was thought to be ready to submit to the necessary depletion, he suddenly flung himself loose from the Sangredos who were preparing to bleed him. It is supposed that the refusal of the King to lend his ample countenance to the scheme inhibited the impulse to which the stimulus of the promoters eloquence had given rise. It is said that there are plenty of wealthy men who are ready to make up the amount needed, but there are signs of the usual jealousies arising among the promoters. Every one wants to play the part of high almoner of the philanthropists' bounty so as to show people that, if he is not the rose, he has lived near it and caught some of its fragrance.

The medical officers of our Army in South Africa are beginning to grumble, or, as the soldiers say "grouse," at their prolonged service in the field. The strain of work is beginning to tell seriously on many of them. It shows itself in nervous breakdown and cardiac disorder. But unless a man is utterly unfit for work he has to stay at his post, for there is no one to relieve him. The Service is grievously undermanned and already every available man is serving in South Africa. The War Office makes no effort to fill up the rapidly increasing vacancies and there is inexplicable delay in promulgating the Warrant making the new scheme, of which I sent you an outline in October, operative. There are said to be nearly 200 medical officers who have earned the right to retire, but who, owing to the exigencies of the service are not allowed to do so. The situation is very serious, and no way out of it is apparent unless the Government can manage to get men to enter the Service, or employs civilian surgeons. The latter have, however, proved so unsatisfactory owing to their distaste for discipline that Lord Kitchener has, it is said, protested strongly against more of them being sent out. He insists on

having officers of the Royal Army Medical Corps. But none are to be had and the War Office is finding that its system of deliberate unfairness toward the Army Medical Service is bearing bitter fruit.

In connection with the Army, it may be mentioned that the new nursing service has been accepted with very little unfavorable criticism. This may be due to the ignorance which except among a handful of experts prevails on the subject. The "experts" who drew it up came to the subject with absolutely unbiased minds, for with one exception not one of them had any ideas on the matter at all. The Queen took a great interest in the scheme and both Her Majesty and Lady Roberts showed a disposition to take an inconveniently active part in the organization of the service. Dr. Johnson asked if a patron was not one who encumbered with help a person able to look after himself. The "Committee of Experts" found that the same definition may be applied to royal patronesses. Among other things it was suggested to them that the service should be called after Queen Alexandra. It speaks well for the independent spirit in which they did their work that they successfully resisted the blandishments of their exalted helpers.

A NOBLE LIFE.

To the Editor of the Medical News:

Dear Sir: I feel that something more ought to be said of the life and character of the late Dr. J. T. Eskridge than will be said in the ordinary formal announcements of his death.

There are few American physicians who have done better clinical work than he, or who have written as much as he of what will have permanent value, or as nearly permanent as medical progress admits of. His recent contribution to the subject of pulse, temperature and respiration in brain disease was an elaborate, painstaking, highly valuable piece of work, and, so far as I know, surpassed any work of the kind that has been done anywhere. He had a rare faculty for exact and methodical observation, and as rare a faculty for clear and simple statement.

In addition to his professional attainments and intellectual qualities, which were of a high order, he was a man of the finest character, simple, unpretentious and sincere, gentle mannered, dignified and manly. For many years he had been on the borderland of invalidism, but in spite of this he worked as few do; he knew that he had two diseases either of which was necessarily fatal, and yet he went quietly on, cheerfully and without complaint, with a quiet courage that was worthy of a better fate.

The career of Eskridge is a fine example to others, for lives like his are the best sources of character. Such a man, though he may be only a humble doctor, is no less than a missionary and philanthropist, relieving the world's suffering, moralizing and elevating men, making them better and happier, and thereby hastening the day of universal good. J. H. McBride.

Los Angeles, Cal., Jan. 23, 1902.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

DISSEMINATED SCLEROSIS—HEMICHOREA AND PAROTITIS IN DIABETES—HEMOPERICARDIUM AS A CAUSE OF SUDDEN DEATH—INFLUENCE OF SOIL UPON COMMUNITY HEALTH—HEMIPLEGIA AND THROMBOSIS—EPIDEMIC DIARRHEA IN INFANTS—THE BOILING OF MILK—MICROORGANISMS AND RHEUMATISM.

Various matters of high scientific importance were presented before the British societies during December. Among these the following are the most worthy of note:

J. M. Finny, at the Royal Academy of Medicine in Ireland, December 13, 1901, exhibited a twenty-two-year-old girl with the typical symptoms of disseminated sclerosis. At the age of eighteen years she became completely paralyzed in the arms, legs, bladder and rectum, and suffered from large bed sores over the sacrum and buttocks. No cause for her illness could be found. For fifteen months she was a patient in County Roscommon Infirmary under the care of E. T. Blakeney. She left the institution so far recovered as to be in much the same state as that in which she was presented. The author called attention to the rarity and peculiarity of the disease and commented on the variability of its course and the difficulties produced in diagnosis owing to this variability in its early stage. He then pointed out that the signs were typically apparent in this patient, taking them in order of their prominence. These signs were complacency as to her sad lot and cheerfulness and contentment as to her surroundings. Gowers lays stress on this feature as characteristic of disseminated sclerosis, more commonly met with in females. A differential diagnosis must be made between this disease and others which in some particular feature resemble it. Such diseases are paralysis agitans, general paralysis, mercurial tremors, ataxic paraplegia, intracranial tumors, especially of the cerebellum, transverse myelitis, and, although the subject of diagnosis was not entered on or discussed, a warning was uttered as to the risk of confounding it with hysteria. This risk is present not when all the typical symptoms occur, as in Dr. Finny's case, but when they are ill-defined and varied in extent and gravity under the influence of time.

G. J. Peacocke read a paper on hemichorea and parotitis complicating diabetes. The patient was a sixty-four-year-old man admitted to the Adelaide Hospital April 29, 1901, suffering from diabetes with the usual symptoms, emaciation, thirst, and polyuria. The quantity of urine passed in twenty-four hours varied from three to five pints and quantitive analyses gave 2.7 ounces of sugar on May 7th, with some smaller quantities on subsequent occasions. Somnolence, which at times approached coma, continued throughout illness. He died May 28th, four weeks after admission. On May 4th he developed left-sided hemichorea, which resisted hyoscine, bromides and chloral. Arsenic in 10-minim and trional in 20-grain doses were given. These caused rapid improvement and disappearance of the chorea on May 13th. The second complication, parotitis, appeared May 11th, at first with little trouble, but on May 16th there were elevation of temperature and enlargement and tenderness of the parotid gland. The fever then continued until the patient's death, but never was higher than 101.6 Fahr. The cause of the parotitis was obscure. Similar conditions have been described in a variety of diseases and injuries of the abdominal organs, but thus far never in connection with diabetes.

J. Burgess gave a few notes on an uncommon case of sudden death in which the cause seemed to be acute capillary hemorrhage into the pericardium. The patient was a poorly-nourished laborer, thirty-five years old, out of employment. He did not complain of being unwell until the fatal seizure came on. Presumably while seeking employment he was noticed to fall suddenly with his shoulder against a wall and then to drop to the ground. All efforts to revive him failed and when the ambulance arrived he was dead and was taken in it to the morgue instead of to the hospital. While poorly-nourished he was not emaciated. Both

lungs were emphysematous with a large amount of muco-pus in the bronchi, but without signs of consolidation or cicatrices. The pericardium was distended with over a pint of fluid blood containing clots. Both ventricles of the heart, especially on the right side, were covered with recent lymph, which at the time could be easily detected and presented a fluffy appearance. Before removing the heart search was diligently but unsuccessfully made for the source of the bleeding. On opening the heart the valves were found normal. The entire front wall of the right ventricle was affected with almost total absence of muscle fiber. The left ventricle was nearly normal, both coronary arteries were permeable. In the right ventricle was a clot formed at the time of death. Both auricles presented nothing abnormal. Although no source of hemorrhage was discovered the blood itself no doubt paralyzed the heart and caused instant death. Evidently during an attack of acute pericarditis, associated with a previously diseased heart, a bleeding occurred sufficient, although small in amount, to cause the paralysis. The usual causes set down for hemopericardium are most commonly rupture of the left ventricle, of an aneurism or of some blood-vessel into its sac, and uncommonly the accumulation of serum or blood during the course of a cancerous or tuberculous pericarditis, or of scurvy and purpura. In this case none of these causes was present except the acute pericarditis. The hemorrhage appeared to have come from the small capillaries involved in the inflammation.

S. D. Clippingdale, at the British Balneological and Climatological Society, December 18th, read a paper on the clay and gravel soils of London and the relative advantages of dwelling upon them. He gave illustrations of his paper by a geological map of London, and by diagrams of sections of the Thames basin, showing that the soil nearest the river bed was invariably gravel, while that of the districts farther away was clay. Tables were presented giving height, elevation, character of soil, density of population and death-rate of every sanitary area of London. These statistics, Dr. Clippingdale contended, proved that living on clay was not so injurious to health as was commonly supposed, and that, as all the hills around London were of clay, they resemble a clay double basin which, if turned upset down, would become immediately drained of water. The high mortality was clearly shown by the tables to be connected with the low-lying and level districts, where the soil was generally gravel. Density, class and occupation of the population were acknowledged to be important features in determining the death-rate, but did not fully account for the great difference between the mortality upon the clay hills and that upon the gravel levels. The omission from the returns of statistics of the Registrar-General with regard to rheumatism was regretted, as this disease was well known to be influenced by the soil. In conclusion Dr. Clippingdale pointed out that the important thing was to live upon a hill; if a hill of gravel could be found all the better. There are none such in or near London, but he felt that his statistics showed that the clay hills were more healthful than the gravel levels nearer the river.

H. Handford, at the Nottingham Medico-Chirurgical Society, December 18, 1901, narrated the history of a case of right hemiplegia due to thrombosis of the cerebral veins. It occurred in a woman, twenty-five years old, three weeks after the removal of a double pyosalpinx. Death occurred three days after the beginning of the symptoms of thrombosis. At the autopsy a formed, old, gray adherent clot was found in the superior longitudinal sinus and hard, new, black clots were found in the left cerebral veins. There were no clots in the arteries, no hemorrhage into the substance of the brain, and no excess of fluid in the subarachnoid space. The fact that the walls of the superior longitudinal sinus are so fixed that alterations of its caliber did not occur as in other veins, that the veins took an ascending course and that the blood-current in them was exceedingly slow, all favored the formation of a clot in that position, and when in addition the cerebral veins were involved the condition was usually fatal.

A. Fulton read a short paper on the treatment of epidemic diarrhea in infants, advocating the clearing out of the intestinal canal, the withholding of all food for a short time, and then the giving of small quantities of the white of egg beaten up with an equal quantity of water until convalescence set in. Very small doses of tincture of opium and of acetate of lead are useful in certain cases. The preventative treatment is the sterilization of milk during an epidemic.

W. B. Ramson read a communication on the question, Should milk be boiled? His points were the ease with which milk becomes a vehicle of disease, although it may come from a healthy cow. It is frequently poisoned by dirt from the milker's hands, by manure from the stable in which the cows are milked, and by dust of all kinds which, floating in the air, settles on the exposed surface. The last accident must occur during its transportation and while standing for hours awaiting sale and consumption. It has been shown repeatedly that many zymotic diseases are traceable to the use of unboiled milk, that ten minutes' boiling will destroy hurtful bacilli, and that the value of the boiled milk as a food is equal to the value of raw milk. The author further advocated the distribution of sterilized milk by the city authorities during an epidemic of diarrhea.

F. J. Poynten and A. Payne presented a paper on the results of an experimental inoculation with a diplococcus isolated after death from the knee-joint of a man, sixty-seven years old, who had suffered from chronic arthritis. Carbolic acid had been the accidental cause of death. Several joints were found to be much damaged by the arthritis with the changes of the nature usually found associated with rheumatoid arthritis in later life. Thus, the fluid in the joint was clear and scanty and contained a small foreign body, probably consisting of organized inflammatory exudate. The cartilages were eroded and the bones eburnated. The synovial membrane was much thickened. A diplococcus was demonstrated in the unincubated and incubated synovial membrane, was isolated and grown on blood, injected intravenously into two rabbits, developing in both arthritis without valvulitis or suppuration in the viscera. One rabbit was killed on the fifteenth day. No erosion of the cartilage or alteration in the bones forming the joints was found. The other animal developed an arthritis of the right knee alone, with a wasting of the muscles of the thigh and of the leg. The animal was killed in the tenth week. The exudation into the joint was scanty, clear and sterile. The cartilages were ulcerated in some places and in others had lost their gloss. The articular surfaces of the bones were slightly flattened in places, ulcerated and their edges thickened and lipped. The muscular atrophy was quite definite. The joint capsule and the tissues about the joint were only a little thickened, but the crucial ligaments were opaque and swollen. A condition of osteo-arthritis had resulted from the intravenous inoculation of a diplococcus isolated from a case of rheumatoid arthritis. The authors pointed out that other investigators have succeeded in much the same way and emphasized the fact that the monarticular inflammation in their experiment was the result of an inoculation into the veins and not of a direct injec-

tion into the joint. They summarized their conclusions as follows: (1) A diplococcus was present in the synovial membrane of the knee-joint of a sixty-seven-year-old man. Several of his other joints showed the chronic destructive changes of one type of rheumatoid arthritis. (2) This diplococcus had been isolated and cultivated. (3) Intravenous inoculation into rabbits had upon two occasions produced arthritis without cardiac lesions. (4) The organism had been isolated from the joint exudations. (5) In one instance an osteo-arthritis, which was non-suppurative, had resulted. This special form of arthritis the authors have not previously observed in animals inoculated with the diplococcus of rheumatic fever. (6) They consider this diplococcus to be the cause of the arthritis both in the man, from which it was isolated, and in the rabbit. Cultures of this diplococcus and sections showing it *in situ* in uninoculated and inoculated fragments of the synovial membrane were shown. The diplococcus rheumaticus was also demonstrated in the synovial membrane from a case of early rheumatic arthritis. Specimens, changes within joints, and tubes containing fluid from such joints were also shown.

SOCIETY PROCEEDINGS.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, Held November 6, 1901.

The President, Alexander Lambert, M.D., in the Chair.

Case of Phlegmonous Gastritis.—Dr. Alexander Lambert said that last summer a case of phlegmonous gastritis occurred in Bellevue Hospital. The patient was a longshoreman who had developed an acute mania and had gone into a stranger's room and made a scene. He had been roughly handled for his intrusion, and had then been brought to Bellevue Hospital. He was a marked alcoholic. On the fourth day he had refused his food in the evening and had been more or less nauseated. The next day he had insisted upon getting out of bed, although much weaker. On going to bed subsequently he had complained of pain around his abdomen. According to the records there had been no rise of temperature above 99° F., and the pulse had not been specially accelerated. Thirty-six hours after his first vomiting there had occurred frequent attacks of vomiting and his pulse had become suddenly very rapid. He died a few hours later at 5 a.m. At the autopsy no peritonitis could be found anywhere. The stomach weighed half a pound and the wall of this organ was half an inch in thickness, and felt boggy. Microscopic sections showed the case to be one of phlegmonous gastritis. The mucous membrane of the stomach was intact, as was also the peritoneal coat, but the submucosa between the mucous membrane and the muscularis showed an enormous number of small round cells pushing the mucous membrane and the muscularis apart. By differential staining the picture presented resembled one of erysipelas of the submucosa. The speaker said that 85 cases of phlegmonous gastritis had been reported in literature, and in half of them there had been peritonitis. As a rule, the temperature had been irregular and the pulse had not borne any close relation to the temperature. Chevosteck in Vienna and Janeway of New York had made a provisional diagnosis during life, and this diagnosis had been confirmed at autopsy, but no one had ever positively diagnosticated phlegmonous gastritis during life. These cases were interesting because of the utter lack of clinical data by which a positive diagnosis could be made. Microscopical specimens were presented.

Malignant Endocarditis with Interesting Features.—Dr. Lambert also reported this case. Clinically it had been a case of acute articular rheumatism complicated with endocarditis, which, so far as the clinical symptoms were concerned, had been of the malignant type. So far as the bacteriological examination, blood-count and the postmortem findings were concerned, it was not a malignant endocarditis, but simple, acute rheumatic endocarditis. The patient was a laborer, twenty-six years of age, with a family history practically negative. Twelve days previous to admission he had suffered from pain in the wrists and forearm and on admission there were headache, fever and swollen wrists and ankles. He was very apathetic and intensely anemic. The physical examination had shown a bronchitis, a heart of normal size and position with a forcible apex beat. There were no murmurs. The second pulmonic sound was, however, distinctly accentuated. Twenty-four hours after admission a faint blowing murmur had been audible at the apex and by the next day this murmur had been louder and transmitted to the axilla. During the next two weeks the bronchitis had cleared up although the anemia had increased and the patient had become more apathetic. At this time, on January 21st, a macular eruption had developed on the arms, neck, trunk and penis—apparently a rheumatic purpura. This eruption had disappeared in five days. A week after this the cardiac murmur had become very harsh and blowing and was transmitted to the axilla and to the back with a marked accentuation of the pulmonic sound. A few days later his mind had cleared up and a presystolic murmur had also developed. One afternoon, six weeks after admission, while sitting up in bed, he had suddenly been seized with intense dyspnea and had died in a few minutes. The variability of the quality and intensity of the murmur from day to day and the septic rise and fall of temperature had led him to the diagnosis of malignant endocarditis. Dr. R. J. Wilson had made three or four blood-cultures from this case. Every one of them had remained absolutely negative. The blood-count twenty-four hours after admission had been 8,600, four days later 16,600, one month later 7,600, and the day before death 6,200. The autopsy showed small hemorrhages beneath the pericardium and there were large clots adherent to the borders of the mitral segment and extending up into the auricles. Granulations on the valves were extensively blended with the clots. The spleen weighed 23 ounces and showed infarcts varying in age from a few hours to six weeks. Microscopical sections and cultures after death from the valves of the heart were absolutely negative. It was usually stated that malignant endocarditis is associated with a marked leucocytosis, and that this served to distinguish it from ordinary rheumatic endocarditis, but in this case, with one exception, the number of leucocytes was about normal. This patient had been seen during life by Dr. Janeway and he had made a diagnosis of malignant endocarditis.

Dr. S. Alexander asked for an explanation of the mode of introduction of the micro-organisms into the system in the first case.

Dr. Lambert said that this was a hard question to answer. It was known that leucocytes engulf bacteria and are subsequently set free by the death of the leucocytes. It was possible that in some such way micro-organisms may be introduced, but, of course, this was a mere supposition.

Dr. Alexander said that he had been making some investigations on phlegmonous cystitis and had found the mucous membrane intact on gross appearance.

Dr. R. J. Wilson said regarding the second case that he had made blood-cultures on four different occasions

and had used two ounces of blood. Each blood-culture had represented 15 minims. He would advise that there be no less than fifteen minims for each blood-culture and that several cultures be made simultaneously.

Tumor of the Prostate.—Dr. Charles Phelps presented a tumor of the prostate that had been removed three days ago by the perineal route alone. The patient was a man who had been suffering from vesical trouble for ten years. His trouble had begun with an attack of retention of urine, which had yielded without the use of instruments. Four years ago a physician in endeavoring to draw the urine had made a false passage and since that time the catheter had been used frequently—during the last six months every hour or two. Dr. Harlow Brooks had reported that sections had been taken from various portions of the mass, but that they had failed to show any malignant growth. It was a cystic adenoma of the prostate. There was a fair amount of increase in the interstitial tissue. The muscle tissue was relatively decreased, apparently from the overgrowth of the connective tissue. Some areas showed actual tissue necrosis. Evidences of inflammation were abundant in every portion of the specimen. Dr. Brooks had recently examined 34 prostates, and had come to the conclusion that these enlarged prostates are not new growths but the result of inflammatory processes. Dr. Phelps said that there had been a good deal of hemorrhage during the early part of the operation, but practically none after the prostate had been removed. He had made use of the transverse incision into the perineum and had not experienced special difficulty in removing this large tumor. About six weeks ago the man had had quite severe hemorrhages for a period of a week or ten days, but this had been the only time that there had been hemorrhages. The growth had obstructed the rectum, making defecation quite difficult.

Dr. Parker Syms asked if during the operation the prostatic urethra or any portion of the bladder had been torn.

Dr. Phelps replied that there had been no tear except in the prostatic urethra, and there was no injury of the bladder behind the prostate, and the opening, considering the size of the tumor, was remarkably small.

Dr. S. Alexander said that he had no doubt that prostatectomy would become the operation of choice in the near future for the relief of prostatic enlargement. The operative technic could certainly be improved. No one of the methods at present in vogue was perfect. The improvement would be coincident with a better knowledge by the operating surgeon of the anatomy of the prostate in health and in disease. He deprecated the making of dogmatic statements at the present time as to the merits of any operation. He said that, on account of the great variations in the shape of the enlarged prostate, whatever method was employed there would always be a necessity for the surgeon to exercise his judgment. He said that the specimen presented by Dr. Phelps was of great interest. It seemed to him, after a very brief examination of it, that the entire prostatic urethra had been removed up to the internal urethral orifice. He pointed out that the floor of the urethra along the veru-montanum was intact and he called attention to other anatomical landmarks and in this connection he requested Dr. Phelps to have the specimen examined very carefully, bearing these points in mind. Continuing, he said that some years ago he had claimed that by his method of performing prostatectomy he had preserved the entire prostatic urethra from the neck of the bladder down to the apex. He had subsequently found and called attention to the fact that he had been mistaken in this. He believed that the prostatic urethra from the neck of the bladder to the anterior margin of the veru-montanum could be preserved, but that the prostatic urethra in front of the veru-montanum was always torn in his operation. He said in order to avoid incontinence of urine it was of the utmost importance to preserve the roof of the prostatic urethra near its apex on account of the anatomical situation of the external prostatic sphincter. Dr. Alexander, speaking in regard to the pathological report on Dr. Phelps' specimen, said that it had been his experience that nearly every one could find evidence of the results of inflammation in the enlarged prostate of long-standing. He thought, however, that inflammation could not be regarded as the causative factor of enlargement. It seemed to him that it was much more likely that the evidences of inflammation were secondary. The theory that gonorrhea was the causative factor in most cases of prostatic enlargement seemed to him untenable.

Dr. R. Morris thought that perhaps surgeons had been too much afraid of removing a certain part of the prostatic urethra. Sometimes he had removed considerable sections of it in particular cases. It seemed to him not at all likely that dangerous stricture would occur at this point. If the floor would cover nicely with epithelium there would probably not be so much to be feared from the removal of a considerable portion of the prostatic urethra. He would like to know if troublesome constriction had been observed in such cases, for, certainly he had not seen it.

Dr. Alexander replied that there was no danger of stricture following prostatectomy. The danger was that incontinence might be caused.

Dr. Parker Syms said that in some of his prostatectomies he had torn through the entire prostatic urethra, though at the moment he had not known of the accident. All of the specimens, with one exception, had been examined microscopically to determine the amount of damage to the mucous membrane, and the result had been negative in those examinations. He had, however, torn through the urethra in the membranous portion and up to the neck of the bladder. His experience had been limited to thirteen cases, but in three there had been a more or less persistent incontinence of urine, though eventually all of these patients had regained control of the bladder.

Dr. G. D. Stewart said that in Dr. Phelps' case the urethra had been entered just at the membranous part. The larger part of the prostate had been enucleated from the right side, and he had taken away all of the floor of the prostatic urethra, but had left all of the roof. The opening into the bladder would barely admit the finger. He had had but little experience with prostatectomy—only six or seven cases, and several of these recent ones. Of three cases operated upon over six months ago he could recall two in which good recoveries were made with excellent control of the bladder; in another the patient was gaining, but had not thoroughly regained sphincteric control. It seemed to him that there was never any danger of stricture in prostatectomy, but chiefly of incontinence.

Dr. Phelps, in closing, said that his patient had not had gonorrhea until he had become infected from a septic catheter. As a consequence of this the man had lost one testicle.

The Roentgen Method in the Diagnosis of Renal and Ureteral Calculi.—Dr. C. L. Leonard, of Philadelphia, read this paper. [See page 305.]

Dr. Alexander said that he was glad to speak on this subject from the clinical standpoint as to the value of the work being done by those making a special study in this department. The longer he did special work himself in urinary disease the less he felt he knew

about certain methods. He was very glad indeed to avail himself of the knowledge of others, and he thought it would be well if physicians generally felt that way. As to the diagnosis of stone in the kidney, the speaker said that ureteral catheterism was talked about by so-called genito-urinary surgeons. It should be a routine in the surgical diagnosis of diseases of the kidney. In some cases catheterism of the kidney had proved very difficult in his hands, though others had succeeded readily in the same cases. He knew nothing about the complicated questions of photography and electricity involved in the use of the Roentgen rays, hence, he availed himself of the services of those who were familiar with this work. His chief difficulty had been in interpreting the Roentgen-ray pictures, and hence he relied very much upon the interpretations given by his friend, Dr. A. B. Johnson. He would not accept absolutely the findings of the X-ray, though believing it a valuable aid in diagnosis. In this respect he took the position that he did in regard to the diagnosis made by a person who examines urine and yet knows nothing about the clinical side of a given case. Dr. Alexander urged that cases demanding the use of the Roentgen rays should not be sent to an ordinary photographer, but to one who is a clinician as well as proficient in the use of the Roentgen rays. Taken in connection with other methods of examination, the Roentgen rays were exceedingly valuable. He recalled a case in which the X-ray picture gave a very strong shadow, yet there was some doubt as to its being a stone. The plate had been submitted to an anatomist of high standing, and he had decided that the position was such that it was probable that the stone was in the kidney. An operation had then been undertaken and the stone found. In two recent cases he had been certain from his clinical observations that there was a stone in the kidney, but the Roentgen rays had failed to find it. He had then treated these cases for a chronic follicular prostatitis, although the symptoms had pointed strongly to stone. He was glad to say that both cases had done well under this treatment, though without the aid of the Roentgen rays he would have felt called upon to operate for supposed stone. Mention was made of another case in which the kidney was undoubtedly enlarged and was well below the free border of the ribs. It was exceedingly tender. The ureter had been catheterized and a diagnosis made by one person of stone in the kidney, and by another of stricture. Dr. Johnson had assured him that there was no stone in this patient's kidney. The examination of the urine was negative. Since the woman had been assured that there was no danger of stone or of cancer the pain of which she had complained had disappeared.

Dr. Parker Syms said that his own experience had not been favorable as to the finality of the negative diagnosis of stone in the kidney by means of the X-ray, but he had been convinced that this was because of the difficulty of securing the services of one skilled, not only in taking the pictures, but in interpreting them. Many conditions present the symptoms of stone in the bladder or in the ureters, and it was important that the surgeon should be able to determine whether or not a stone is present. In one case in which the Roentgen rays had been resorted to by him no stone could be detected, yet almost immediately after the last exposure had been made the patient had passed a renal calculus, thus proving that the method of examination had been faulty. He hoped something more would be said by Dr. Leonard as to the details of the technic employed by him.

Dr. A. B. Johnson said there could be no question that the surgical world owed to Dr. Leonard the placing of the negative diagnosis of renal stones upon an absolutely solid foundation by means of the Roentgen ray; certainly more credit was due to him for the development of the method than to any one else. His own experience had extended over a comparatively short period, *i.e.*, eighteen months. Short as it was he would second an assertion, repeatedly made by Dr. Leonard, to the effect that, given a proper apparatus and the requisite knowledge and skill, enabling the operator not only to make the pictures but to interpret them rightly, a negative diagnosis can be made with absolute certainty. The reason the plates fail to show a stone in a case in which the stone is subsequently found, especially if the patient is of medium size and the stone of fair size, is that the plate taken by the operator is of such a quality as not to bring out the necessary details. Dr. Leonard had long ago pointed out that, unless the X-ray pictures did show a certain amount of tissue differentiation the extent of which could only be determined by experience, the plate was of no use for the purpose under discussion, although it might be able to show a large stone. The muscles on either side of the spine should show with great distinctness; the transverse processes of the last two ribs should show plainly; there should be considerable shadow of the soft parts, and usually some shadow of the kidney itself. These were the requisite qualities, and if present the stone would show. To obtain such ngeatives in a large, stout individual was not always easy. With a thick body it was necessary to increase the distance of the tube from the plate, or else run the risk of causing burns. This increased distance made the exposure longer. The picture must be exceptionally good to show a small stone in a stout person, and, as the exposure must be longer, one hesitated to take many pictures. Dr. Leonard insisted that the quality of the light given by a tube should be such as to show upon a photographic plate the greatest possible amount of tissue differentiation. This could only be done by the use of a "soft" or low-vacuum tube. A tube of high resistance and great penetration does not give as good results in this class of work. Dr. Leonard had placed an absolute limit on this resistance, using ordinarily a tube having a resistance of 1½ to 2 inches. With the particular apparatus used by him this might be all right, but with other apparatus and with other tubes precisely the same rays might be given off even though the resistance employed represented three or four inches. He understood that Dr. Leonard used almost exclusively Queen's self-adjusting tube. He had used this also, but preferred other tubes. With a larger tube, having considerably greater resistance, a much greater resistance in air could be used and yet the necessary detail be obtained in the picture. A number of cases had been cited in the paper in proof of the feasibility of detecting very minute stones in the ureter. Dr. Johnson said he would also cite a case in point. In his case there had been a shadow of a very small stone in the left ureter. A month or two later a second picture had shown that the stone had moved down. At the end of another month the stone was within an inch or two of the bladder, and about ten days later it had been passed spontaneously and was found to weigh only two grains. The value of the Roentgen-ray method was well exemplified by this case. Dr. Johnson then exhibited two typical lantern slides, one showing a very large stone in one kidney and one minute calculus in the ureter on the same side, and the other showing a stone in the ureter.

Dr. Alexander Lambert said that he had been struck with the statement made by the reader of the paper that in nine cases he had been able to assure the patient that the stone would pass and that an operation was unnecessary. This was a most gratifying advance in

surgery, both to the patient and to the physician, for, often it was a question whether the patient's condition was such as to justify a serious operation unless the latter were absolutely necessary.

Dr. Leonard, in closing the discussion, said that he had described in his paper the resistance of the tube he uses because with his apparatus this gave the best results. He had seen in Liverpool this summer a beautiful negative made with a tube representing a resistance of five inches. He agreed with Dr. Johnson that varying conditions would give different results, and that the resistance he had laid down would not hold for all operators. It was not possible to absolutely protect patients from X-ray burns because the nature of the agent used is not yet fully understood. A law had been recently passed in Austria requiring persons making X-ray examinations to be licensed for that purpose, and that most of the licences are granted to graduates in medicine. Dr. Leonard said that at the present time he places the patient on a table on the back, and places the tube above the third lumbar vertebra for the renal examination. He then uses the quality of light varying in resistance from 1½ to 2 inches in parallel spark, the resistance varying with the density of the individual and to be determined by experience. In making the pelvic picture he places the tube over the sacrum on a line joining the anterior superior spines, the tube being placed in such a way that the whole shadow of the pelvic outlet is cast upon the plate. The length of exposure and the distance of the tube from the plate vary with the thickness of the subject and the varying conditions found in individual cases. The exposure had varied in his cases from five to twenty minutes. He was now doing all his work with a four-inch spark coil, and getting more energy than formerly with a ten-inch coil. These coils had been built at his suggestion, to run from a motor generator or converter giving 20 volts and 10 to 15 amperes, and he had seen them give more energy than could be used. There were improvements constantly being made on the electrical side and in the technic and development of the Roentgen method of diagnosis.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held January 7, 1902.

The President, Joseph Collins, M.D., in the Chair.

Myasthenia Gravis Pseudoparalytica.—Dr. Frederick Peterson presented a woman, thirty-eight years of age, the mother of two children, who had been first seen by him in October, 1900. She had been sent to him by Dr. Knapp of Mount Vernon. For several weeks a difficulty in speech had been noted and also some dysphagia, the condition resembling, to a certain degree, bulbar paralysis. There was no history of specific disease or of intemperance. She had no pain, not even headache. Examination showed some weakening of one side of the mouth, slight deviation of the tongue to the right and a very peculiar manner of speech, a dysarthria that had no real resemblance to that of bulbar palsy, general paresis, multiple sclerosis or any of the common types of difficulty in speaking. It seemed almost as if it were assumed, or as of hysterical simulation. There was no atrophy of the lips or tongue, and no actual paralysis of any of the muscles or of the muscles of the throat. The gait was an imitation of a spastic gait, but without spasticity. She was anemic, very weak and with a weak pulse and heart. The pupils reacted normally. The knee-jerks were rather subtypical. There was no weakness of the eyelids, such as the ptosis described in many cases. She was pregnant and in March, 1901, gave birth to a normal child. She was seen again in May and in November, 1901. The condition of pseudospastic gait and pseudobulbar dysarthria remained unchanged at both of these examinations. There was quick exhaustion in mastication, speech, swallowing, walking, etc. This disease, the speaker said, was sometimes known as asthenic bulbar paralysis, asthenic paralysis, bulbar paralysis without anatomical lesion, or myasthenia gravis pseudoparalytica, and had been described by Erb, Oppenheim, Hoppe and many others. The symptom-complex in typical cases consisted of dysarthria, dysphagia and masticatory weakness, with corresponding paresis of the labial, glossal, palatal and masticatory muscles. The paresis might affect the upper facial muscles and those of the extremities. There was no atrophy and no signs of degenerative reaction. The sensorium remained free. The disease fluctuated from time to time as regards the severity of the symptoms. The sphincters and reflexes were not appreciably affected. The course might be periodic, acute, subacute or chronic. The prognosis was unfavorable, though patients had recovered. Several autopsies had been made with negative findings.

Dr. B. Sachs said that he had seen only one other case. In the one just presented, the clinical picture was so distinct that there could hardly be any doubt about the dagnosis. Evidently the cases were very rare, for they were not of a nature to be readily overlooked.

Dr. Joseph Collins said that he was under the impression that the case under discussion would eventually become an atypical one of glossolabial pharyngeal palsy. There was nothing in the case which reminded him of the cases of asthenic bulbar paralysis that he had seen. He would not include under asthenic bulbar paralysis any patient who presented the symptom-complex of a spastic paretic condition. It was entirely opposed to present knowledge of the disease to find exaggerated knee-jerks and tendon-jerks, and for this reason he would rule out the present case from the category of true asthenic bulbar paralysis. Moreover, the woman seemed to be beginning to develop atrophy of the lips. The first case of asthenic bulbar paralysis to be described in this country was one that he had long had under observation. That woman found that while she could chew one or two mouthfuls, she could not continue to do this. The same was true of muscular acts in general; there would be sudden evidence of exhaustion. Having gone through two or three critical periods characterized principally by the phenomena of surgical shock, she had practically recovered completely, inasmuch as there were no active symptoms of exhaustion present. Her facial muscles, though presenting no evidence of atrophy, still did not respond energetically to conscious stimuli and the gait was a somewhat shuffling one.

Dr. Peterson said that his first impression was that this was a case of true bulbar palsy, but in the year and a half which had elapsed since then there had been no true atrophy of the face, and no true spastic condition. The knee-jerks were active, but not exaggerated, and there was certainly no ankle clonus. It was very easy to demonstrate the presence of muscle exhaustion. It was, of course, possible that later the case might present the evdence of true bulbar palsy, but certainly it did not do so at present.

A Case of Morphea.—Dr. J. Fraenkel presented a young woman, thirty years of age, an artist by occupation. The family history was negative, and she had been well with the exception of a severe attack of malaria eight years ago. About five years ago blotches began to form along the course of the sciatic nerve, and were at first tender, but subsequently underwent

atrophy. When first seen by the speaker the examination of the nervous system was practically negative, but there were areas of atrophy of the skin. She had improved considerably since first coming under observation on January 29, 1901. His diagnosis was morphea or disseminated scleroderma.

Report of a Case of Spinal Cord Tumor Successfully Operated Upon.—Dr. Robert Abbe made this report. The patient was an athletic man, thirty-two years of age, who had been first seen in April, 1900. He had been well up to three years before, when after a fatiguing game of golf he was seized with pain between the shoulders. This disappeared within a few days. Subsequently he noticed that the fingers began to be numb and became flexed. Then the legs and arms became similarly affected. Dr. Dana prescribed large doses of iodide of potassium, thinking the case one of spinal cord tumor. Various consultants saw the case, but he became suddenly worse. When seen by Dr. Abbe, the fingers were tightly flexed into the palm. On April 30, 1900, he operated upon the spine, removing the laminæ of the fifth, sixth and seventh cervical, and the first, second and third dorsal vertebræ. A thin layer of a whitish substance was found bulging backward, and on cutting into it a dark tumor was revealed, which measured two inches in length and was attached to the anterior wall of the canal. On removing the tumor, the hemorrhage was not severe. Convalescence was uneventful. Some of the muscular and sensory conditions were improved. Dr. F. C. Wood, the pathologist of the hospital, reported that the tumor was a sarcoma of the spinal cord.

Dr. C. L. Dana's report of this case was also read. The symptoms began, this report stated, in 1896. They did not progress much until March, 1898. He had been first seen by Dr. Dana in October, 1898. There was exaggeration of the deep reflexes, ankle clonus and wrist clonus; there were occasional attacks of vertigo, and he was particularly sensitive to cold. There was no distinct differentiation of cutaneous sensations, though the temperature sense was rather more disturbed than the other senses. Just prior to the operation by Dr. Abbe the following condition was noted: There was total paraplegia with the legs greatly contractured; the hand was in the position of ulnar paralysis; the reflexes were all exaggerated. The right arm showed anesthesia to all forms of sensation; the left arm showed no anesthesia. Apparently the disease began in the eighth cervical and first dorsal segments of the cord. While spinal tumor had been suspected from the first, Dr. Dana said that he had been inclined to believe that there was some meningeal complication. On the whole, the picture at this time was very much like that of hypertrophic pachymeningitis. The operation revealed no meningeal complication; only tumor of the cord and the consequences of pressure.

Dr. V. P. Gibney said that he had seen this patient on June 6, 1900, and had found complete paralysis of the lower extremities associated with a high degree of spasm. The thighs were strongly flexed and the legs upon the thighs, so that the heels were pressed against the buttocks. On October 30, 1900, under gas and ether anesthesia, he had divided fascia and muscles about the hips, dividing the hamstrings and the Achilles tendon, and getting the limb into much better position. Plaster-of-Paris bandages were applied from the toes to the free ribs. A second operation was done on November 15, 1900, and by this still further correction was obtained. On January 3, 1901, all plaster dressings were removed, and posterior splints were employed in connection with traction. The spasm of the limbs grew less. On February 5th, Dr. M. Allen Starr saw the case and made a diagnosis of complete degeneration of the cord. When examined last fall it was found that the spasm was fast disappearing, and that there were little or no contractures about the joints. There was no evidence of recurrence of the tumor, and the result under the circumstances seemed to be all that could be expected.

Dr. B. Sachs said that he had reported about two years ago a case of sarcoma pressing upon the cauda equina which had been successfully operated upon. The diagnosis had been made from the area of pain and from the fact that pressure upon a definite region just to the right of the spinous process of the second lumbar vertebra caused exactly the same pain as that of which the patient complained. The diagnosis was confirmed at the operation, the tumor presenting in the incision. It was extradural and was completely enucleated. The spinal cord had not yet been invaded. If there were any reason to suspect spinal tumor the operation should be done early. In the case just referred to, if the operation had been postponed even for a short time the cord would have been invaded and paraplegia would have been the result. The inclination of the neurologists to make a diagnosis of pachymeningitis did not seem surprising, and was to be explained by the length of the tumor. Even if the case were one of pachymeningitis he did not think any harm could be done by an exploratory laminectomy.

Dr. Abbe, in answer to questions, said that the tumor was intradural, that it started in the medullary tissue and extended into the spinal canal, not into the vertebral canal, and distended the spinal cord.

Dr. Joseph Collins said that the neurologists had heretofore relied too largely upon pain in making a diagnosis of spinal cord tumor, although probably the majority of such tumors were associated with pain. He now had under observation a patient in whom the symptom-complex was an ataxic paraplegia, and he was beginning to think that the case was really one of sarcoma. Seven or eight years ago he had seen in the Hospital for Nervous Diseases a case that had been diagnosed as pachymeningitis, but some months later he had made the autopsy, and had found a tumor which could have been very easily removed by operation.

Scleroderma and Sclerodactylitis, with Some Remarks on Its Therapeutics.—Dr. B. Sachs read a paper with this title. He said that most neurologists seemed disposed to accept the theory that this disease was an angiotrophoneurosis, though many were inclined to look upon it as originally a nervous disorder. It was certainly not a purely spinal affection. There was a typical fascies of scleroderma, enabling one to make the diagnosis at first glance; he referred to the peculiarly thin nose, the hollow cheeks and the retracted lip. All sorts of therapeutic measures had been adopted without much benefit. Among the remedies which had proved of decided benefit in certain cases was thyroid extract. The first case reported by Dr. Sachs was that of a woman, fifty-four years of age, who had been first seen in November, 1891. The symptoms of scleroderma had developed four years previously. Many dermatologists had seen her and prescribed for her without the slightest benefit to the scleroderma. Thyroid extract was prescribed, and it benefited her so greatly that she continued its use without permission. When seen again some time afterward she was greatly emaciated, but all of the symptoms of scleroderma had disappeared. She was directed to stop the thyroid extract at once, and after a time to resume it, taking two grains three times a day. The speaker said that he had seen her only recently and had found her perfectly well, though it was necessary to keep up small doses of the extract or the symptoms

of scleroderma would return. The second case was that of a young woman of twenty-four, who had also been benefited by this treatment. A radiograph of this patient's hands was exhibited to show the attenuation of the bones. Another case was interesting in that the scleroderma followed an injury, the piercing of the hand by falling upon a letter file. Eight months after this injury the skin of the hands became hard, discolored and tense, and the condition was aggravated by cold weather. An X-ray picture showed no changes in the bony structures. There was such slight benefit from the thyroid extract that it was discontinued, and the man's condition remains at present unchanged.

Dr. E. B. Bronson said that a distinction should be made between simple idiopathic atrophy of the skin and scleroderma. Circumscribed atrophies of the skin occurred in various places, and although they might present a hardness it was very different from the hardness of scleroderma because there was a thinning and an atrophy which was not present in scleroderma. Scleroderma was very frequently followed by atrophy, but atrophy was not an essential part of the disease. In the so-called diffuse form there was no change in the appearance of the skin in a typical case, and the change was noted only by the sense of touch. The cases reported in the paper were of the diffuse variety, but this class of cases could be conveniently divided into a limited and a universal form. The more or less limited diffuse form came on rather suddenly after an exposure to cold or after an injury, and at first the functions of the part and the appearance were not changed, but the sense of touch would enable the physician to at once recognize the existence of scleroderma. The generalized diffuse form sometimes followed exposure, but it was more commonly due to some central trouble. It was only after some atrophic changes had taken place that there was visible loss of substance. At the stage of maturity the face of such a person was not shrunken, according to his experience—in other words, the contour was not altered, but expression was entirely wanting. The circumscribed form of scleroderma was totally different, and was called by the English by the rather absurd name of morphea. Instead of being ill-defined at the margin it was sharply limited, and was usually associated with a change of color, as a rule being darker than the surrounding skin. It often presented a lilac border. In this form there was simply a scleroderma without atrophy. In most of these cases recovery was spontaneous. Some years ago he had observed a peculiar case in which the diffuse form had been converted into the circumscribed variety or morphea.

Dr. Joseph Fraenkel said that he had seen altogether nine cases of scleroderma, and had become impressed with the idea that this term included several different conditions. There were three types, the circumscribed, the generalized and the secondary forms resulting from arteriosclerosis, chronic rheumatism and very many other causes. An example of the secondary form was a case in which the patient suffered from myocarditis and angina pectoris. There finally developed along the inner aspect of the left arm a line of induration of the skin, which ultimately became atrophied. The only variety which seemed to yield readily to the thyroid extract was the circumscribed form.

Dr. B. Sachs said that the name scleroderma was rather unfortunate, because it was evident from the radiographs presented that other tissues besides the skin were affected, only the muscular tissue seeming to be exempt. The cases described by Dr. Bronson had probably been observed in the early or middle stages of the disease. A point of value in the diagnosis was the absolute immobility of the skin, the latter appearing to be glued to the part underneath. In his cases he had used only the powdered thyroid gland, given in capsules, for, in previous years he had found the extract entirely unreliable.

BOOK REVIEWS.

Photographic Atlas of the Diseases of the Skin. By George Henry Fox, A.M., M.D., Parts VI., VII., J. B. Lippincott Company, Philadelphia and London.

In these two latest fascicles of this very desirable work the following diseases are described and illustrated: Impetigo contagiosa, lupus serpiginosus, syphiloderma pustulosum, purpura, eczema cruris, pityriasis seborrhœica, chromophytosis guttata, psoriasis gyrata, pityriasis diffusa and fibroma.

We can but reiterate our pleasure in being able to endorse this work most heartily. It is the best for its purposes with which we are acquainted.

Regional Anatomy of the Head and Neck. For Students and Practitioners of Dentistry. By William T. Eckley, M.D., and Corinne Buford Eckley. Lea Brothers & Co., Philadelphia and New York.

This book might be regarded as distinctly an application of anatomy to the science of dentistry. There are in it, however, a large number of facts which one does not often see so well tabulated in books on medical anatomy, although such facts are of importance to the surgeon and physician. An example of this is found in the discussion of trifacial neuralgia. Here the author enumerates all the possible sources of its intrinsic reflex pain and specifies a system of examination for the source of such pain which involves a perfect knowledge of the distribution of that nerve. One feature of the book is the collection of a series of valuable questions at the end of each chapter. While few of the more minute points of anatomy are touched upon by the book, it will be valuable to anyone as a means of reference or for diagnostic purposes.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

The Pocket Gray. Fifth Edition, Edited by Dr. C. H. Fagge. 12mo, 269 pages. William Wood & Co., New York.

A Manual of Clinical Diagnosis. By Dr. Charles E. Simon. Fourth Edition. 8vo, 600 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

Mosquito Brigades and How to Organize Them. By Dr. Ronald Ross. 8vo, 100 pages. Illustrated. Longmans, Green & Co., New York.

A Brief Manual of Prescription Writing. By Dr. M. L. Neff. Demi 8vo, 72 pages. F. A. Davis Company, Philadelphia.

A Guide to the Microscopic Examination of the Eye. By Dr. R. Greeff. Translated by Dr. H. Walker. Demi 8vo, 171 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

The Medical News Pocket Formulary. Lea Brothers & Co., New York and Philadelphia.

A Manual of Bacteriology. By Dr. H. V. Williams. 8vo, 200 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

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ORIGINAL ARTICLES.

SOME NOTES ON THE BRITISH CONGRESS ON TUBERCULOSIS.

BY E. G. JANEWAY, M.D.,
OF NEW YORK.

By request of your President, Dr. Hermann Knapp, a request at first declined, I have consented to give a brief relation about the British Congress on Tuberculosis which I attended by invitation as one of the honorary vice-presidents. I fear it may be like a twice-told tale. At the same time a symposium has been arranged on certain matters relating to tuberculosis considered at that meeting.

The Congress, which convened in London during the last week of July (22 to 26, 1901) was a marked success. The arrangements were such as not only provided for but produced an orderly meeting. Anyone who subscribed the regular fee became a member. In addition, delegates were sent to represent medical, municipal, or other corporations, as boards of health, the state government and other governments or departments. Moreover, a certain number of physicians from other countries were invited as honorary vice-presidents. Amongst these—to name only a few—were Profs. Koch, Leyden, Gerhardt, Flugge from Germany; Profs. Bouchard, Brouardel, Lendouzy, Nocard from France; and from America, Drs. Dennison, Dock, Knopf, Musser, Osler, and Adami of Montreal. This gave to the meeting an international character, instead of restricting it, as the name might seem to imply, to the consideration of tuberculosis as it affected the British nation. Too great credit cannot be given to those more particularly responsible, as it implied a great deal of very hard work on their part, not alone to arrange for the scientific and practical side of these meetings which lasted for four days, but also to fill in the gaps with social amenities for the members, delegates, and those accompanying them.

In this way there was a reception on the evening preceding the opening of the Congress, a reception at the Mansion House by the Lord Mayor and the Lady Mayoress; a reception at the Victoria and Albert Museum, South Kensington, by the Earl of Derby and the Countess of Derby; a river party at Richmond by Sir J. Whitaker and Lady Ellis, and a garden-party at Syon by the Duke and Duchess of Northumberland.

The King, who was much interested in the Congress and who as Prince of Wales had intended to preside at the opening meeting, received a certain number of the delegates from other countries. The Duke of Cambridge opened the Congress on behalf and by the request of the King at the first general meeting and received addresses from chosen representatives of foreign countries. Dr. Osler spoke for America. On the last evening the British members gave a dinner to the foreign delegates and vice-presidents at the Hotel Cecil. Throughout you will see that the foreign representative was cared for, and that not alone his knowledge of tuberculosis, but also his acquaintance with those working in the field was broadened.

The control of tuberculosis is a matter which outweighs in importance any medical question before us. All those circumstances which may hasten the time when the amount of the disease shall be lessened should be welcomed and such as may retard the event should be deplored. What we wish to know, however, is the truth regarding the conditions against which we must use the greatest effort.

At three of the general meetings of the Congress addresses were delivered as regards the means or measures which should be adopted. The first was by Robert Koch, to whom the medical world is so much indebted for his brilliant discoveries and painstaking investigations. He approached the subject from the side of its method of development and considered that all the facts pointed to the sputum of tuberculous individuals being the main source of infection. He advocated in consequence devotion of energy toward the prevention of this infecting sputum becoming a source of danger. Whatever aided this was to be encouraged—prevention of expectoration, notification of those affected with tuberculosis to public officials, and, in particular, measures such as those adopted in New York City for the disinfection, etc., of rooms. He praised Dr. Biggs for his share in this work. The lessened death-rate in England, he believed, was to be ascribed in a large measure to the hospitals for consumptives existing there, and hence he advocated the erection of special hospitals for consumptives, endowed by wealthy individuals, by municipalities and by the State. He then drew attention to the benefit of instruction of all classes of people as regards the dangers of intercourse with individuals affected with tuberculosis, and of the consumptive as to what he was to do when he coughed and how he should treat his sputum. He also spoke on sanatoria as a means of lessening the dangers from the disease, by curing properly selected cases before they reached the infectious stage. He did not believe that the statistics, particularly those in Germany, proved that we could rely on these as greatly aiding in prevention. The figures which he gave were that in Germany there were 226,000 people over fifteen years of age in such advanced stages of consumption that hospital treatment is necessary for them. The sanatoria at present existing could only accommodate 20,000 in a year, of which

judging by the past 4,000 would be freed of the bacilli in their sputum. He said that the sanatoria would never render the other measures superfluous, but, if the number become great and if they perform their functions properly, they may aid the strictly sanitary measures in their conflict with tuberculosis.

Prior to these declarations he had created much surprise to such of those who had not foreknowledge by declaring emphatically his disbelief in the identity of human and bovine tuberculosis for the following reasons: Experiments on properly selected animals (cattle) showed that the bacilli originating from human tuberculosis when inoculated or injected in cattle or when fed to them would not induce tuberculosis. Moreover, he believed that, while it was not proper to make a contrary experiment by using bovine tubercle bacilli in human beings, we had a practical experiment in the fact that milk and butter contained to a considerable degree bovine tubercle bacilli. Now, if the danger existed, as had been supposed, we should have a much greater amount of primary intestinal tuberculosis, which was found to be a very rare condition in Berlin. He said that he had conducted his experiments on animals during the past two years in order to produce this proof. His conclusion was that we could neglect the care of meat and milk as the cause of tuberculosis, using these words: "I should estimate the extent of infection by the milk and flesh of tuberculous cattle and the butter made of their milk as hardly greater than that of hereditary transmission, and I do not deem it advisable to take any measures against it." This certainly is a very important statement, so much so that Koch himself suggested that it should be confirmed by the experiment of others.

We have with us to-night the pioneer in the work of the study of the difference between human and bovine bacilli, obtained by observing the effect of injections of cultures from each source in cattle, Dr. Theobald Smith, who reported his work in this direction to the Association of Physicians in Washington, May, 1896, and who again made a second communication in 1898 to the same Association. I have asked him to be present in order that he may give you the benefit of his five years' study, experience and conclusions. In his published statement he was more cautious as regards the possibility of the infection of human beings by bovine bacilli from the udder of affected cows in the milk supplied to children. I am sure that the Academy will appreciate the presence of a quiet worker for years in this particular field and pay attention to the views which he will give us.

You may ask me what are the views which I entertain upon so important a matter? I said at London that friction will produce light and light illumination and that in the end the truth will prevail. I have had one experience within recent years which has made me cautious. This related to a group of three children in one family living in a near-by New Jersey town, affected with tuberculous glands in the neck, which were later removed by Dr. McBurney at the Roosevelt Hospital. When these children were brought to my office, I cross-examined the mother as to the origin of the trouble, and at first she thought that the milk supply was all right, but on her return home she was informed by her cook that some time before blood had been present in the milk. I immediately had word sent to the State Board of Health of New Jersey, asking for an examination which was made a week later, but in the meantime the cow which had been ill disappeared. Not alone these children, but the children of two neighbors had the neck glands affected; they all took the same milk supply. I had a careful inquiry made as to other possible sources of infection in the house, but with a negative result. It has always been a matter of regret that a more prompt investigation was not possible, for I feel reasonably sure that the source of infection may have been a contaminated milk supply. *Per contra*, a few years ago a mother brought to me her child who had drunk largely for some years of the milk of one cow which had been found to be tuberculous, and, on being killed, was found to be affected throughout by tuberculosis. Over a year had elapsed since the destruction of the cow, the child showed no evidence of tuberculosis, and there was greater danger of the mother than of the boy, owing to her extreme anxiety.

It is apt to be assumed that if a child has primary intestinal tuberculosis, this would necessarily be ascribed to the milk. Koch has stated that he has made some experiments with such tuberculosis by injecting, etc., into cattle without much proof so far, *i. e.*, if of human it ought not, if of bovine origin it ought to prove infective.

In children creeping on the floor, putting fingers and other objects in the mouth, the possibility of infection should not be lost sight of. In the case of bone, joint, glandular tuberculosis, we may not have proof of primary site of entry. My attention was particularly drawn to the possibility of infection of children in this way when, at Quarantine Hospital on one occasion, I noticed the children from a cholera ship playing on the ground and putting their hands in little pools of water and then in the mouth; cholera had been marked in the emigrant children on the steamship. Hence this exists as a possible source, providing a case of tuberculosis is present in the particular place examined or can have had access to it. I feel, moreover, that till it has been shown that milk from tuberculous cows, and especially from cows with tuberculous udders, is harmless, we must continue our efforts to obtain a pure milk supply. I cannot believe that milk from diseased cattle will furnish the food that is best for infants and children, in whom the results, even if not tuberculous, might be such impairment of health as to constitute one of the causes predisposing to a habit of body rendering it liable to an inroad of tuberculosis from some other source. In view, moreover, of the greater effect of bovine tuberculosis upon animals

other than the human, it does seem as if men might react to bovine tuberculosis when cattle would not react to human. One swallow does not make a summer, nor one case prove anything except that no harm happened to that subject.

At a subsequent meeting when tuberculin was discussed Prof. Koch was asked whether the tuberculin in use was all human or partly bovine in origin, and the inquiry was also made why should cattle react to tuberculin from human tuberculosis if insusceptible to it. The reply to the first was that it was all from human type; to the second, according to my understanding, relationship of bacilli was the explanation.

On the day but one following, Prof. McFadyean made a reply at the general meeting in a paper upon tubercle bacilli in cow's milk as a possible source of tuberculous disease in man. In this paper the main contention was, first, that the greater virulence of the bovine bacilli for other species of animals argued that it might very probably be pathogenic for man also; second, that the statistics of the hospital in Great Ormond Street, London, examined by Dr. George Still, and those of the Royal Hospital for sick children in Edinburgh, by Sheenan, seemed to point toward a greater frequency of primary infection through the intestine. The first gave 29.1 and the second 28.1 as the percentage of tuberculous infection by the alimentary tract. I have asked certain of the Fellows of the Academy to consider this question, and to state so far as they are able their experience and views on the liability of cow's milk to be a source of tuberculous infection.

Prof. McFadyean recommended: (1) Compulsory notification of udder disease, and of any symptoms of tuberculosis in milch cows, with of course the power to inflict a fine for not reporting; and (2) the interdiction of the sale of milk from any cow suffering from tuberculous disease of the udder or exhibiting clinical signs of tuberculosis. He was not inclined to believe that it was practicable in Great Britain to use the tuberculin test in all infected herds, or to compel the isolation or slaughter of all cows reacting to this test. The obstacle was that one-third of all the cows in Great Britain giving milk were tuberculous.

I trust that this short abstract will induce the members to read the entire paper, if they have not already done so. As regards Prof. Koch's paper, I presume all the members have already perused it; if not, I would urge their doing so, as I have omitted mention of some factors, such as cases which ought to be segregated and the earlier comparative allusions.

In order, however, to illustrate the difference of views which obtained, Prof. Brouardel in his address at the second special meeting laid great stress on the laws in England which were enacted for the building of better houses and for the improvement of the sanitary condition of old houses as one great cause of the improvement in the death-rate from pulmonary tuberculosis in Great Britain, which in fifty years has amounted to fifty per cent. He also laid great stress upon alcoholism as an adjuvant in the weakening of the system and rendering it liable to tuberculosis. He spoke also in favor of dispensaries for tuberculosis and of seeking out the tuberculous invalid instead of waiting until he should apply. He would have workmen as agents who would notify when a fellow coughed. He spoke also in favor of sanatoria. His paper was a review of what was being done in different countries against tuberculosis.

The Congress was subdivided into four sections, viz., (1) municipal, (2) medical, including climatology and sanatoria, (3) bacteriological and pathological, and (4) veterinary. In each of these work was carried on in the mornings, many interesting papers being read and discussions conducted. At the municipal section a paper by Dr. Biggs on "Notification" was read. It contained reasons for making this compulsory, defining what was to be understood by this and giving statistics of favorable results attributed to it. It led to considerable discussion.

The discussion of tuberculin as an agent for the diagnosis and cure of tuberculosis was also much debated. Dr. Koch was one of the principal speakers. Regarding it as a curative agent he took practically the same ground as Dr. E. L. Trudeau has taken, viz., that it was only to be employed in afebrile cases; as a diagnostic agent he had employed it in 3,000 cases without bad results. Having prevented one person from suing a physician who had used it for diagnosis, whereby rapid phthisis had resulted, I am not in the same position.

The discussion on mixed infection and phases of tubercle bacilli, etc., was also of much interest.

Interesting papers on sanatoria and on climate were presented, and the demonstration of radiographs of the lungs showing capability of demonstration of lesions of tuberculous nature was favorably received. The Academy will recall Dr. Williams's demonstration of this matter. At the Section of Veterinary Medicine the consideration of tuberculosis in cattle was discussed in its different phases.

I cannot dismiss this portion of the subject without speaking in terms of greatest praise of the Museum of the Congress on Tuberculosis and of its descriptive catalogue, compiled and edited by Dr. W. Jobson Horne, Honorary Secretary to the Museum Committee. The catalogue of one hundred and forty-nine pages was descriptive of preparations from different museums which had been gathered into a room convenient to the hall of meeting. Perhaps as interesting as any were the five culture-tubes of tubercle bacillus originally obtained by Prof. Koch in August, 1881, from the miliary tubercle of a man and carried through four hundred and thirty-five sub-cultures without again going through the animal body. The cultures of the tubercle bacillus and of organisms resembling it were also well developed. The part on morbid anatomy of tuberculosis was also very full and instructive. To

the lay mind it must have provoked thoughts of future possibilities.

To Malcolm Morris, the Honorary Secretary of the Congress, much praise should be given for those labors which were entailed by his position and to which he proved equal before and during the Congress.

The result of the Congress was given in a series of resolutions adopted on the afternoon of the last day. These were as follows: (1) Human expectoration is the chief source of danger, or cause of production of phthisis. (2) Measures should be adopted to secure the destruction of the sputum. (3) Notification is under certain conditions necessary. (4) The construction of sanatoria, especially for the poor, should be favored. (5) All measures hitherto in force against tuberculosis in cattle should be adhered to. (6) Koch's experiments should be repeated, and established by others—a committee. (7) An international committee should be formed. (8) Due consideration should be given to the contributing causes, such as alcoholism. (9) Participation in unions or associations was favored. (10) The theme for the next Congress was the individual disposition to tuberculosis.

The proceedings have been published and each of you may read for himself if these hints make you desire. I regard early recognition of the presence of the disease in an individual as a matter of prime importance, not alone for the cure, but also for prevention. Each patient whom we rid of the bacilli and prevent from reaching the advanced stage is a great gain. It seems almost superfluous to speak on this subject here and yet, unless great care is exercised in each case coming to us with a slight cough and somewhat departing from the normal healthy condition, we are liable to overlook the incipient stage of the malady. No one should be examined unless the chest be bared of all but a thin unstarched garment. Moreover, we must be on our guard not to assume that tuberculosis cannot be present should the ear fail to detect any very striking deviation from the healthy standard. Take the cases which begin with slight hemoptysis, and I suppose that you know when it has ceased, how little of a sign may be present? This leads not a few physicians to claim that it originated from the throat. We should aim at making a diagnosis before we find dulness and marked respiratory changes. These will not come with the affection of a small bronchus, but suspicious slight evidence of an apex catarrh may be made out. My own practice is to subject every case of this kind to examination of the sputum for tubercle bacilli, to comparative weighing, to study of the thermometric record taken four times daily in the rectum for a week, and to repeated examination if not satisfied. We owe to Robert Koch a debt of great magnitude for the ability to distinguish the tubercle bacillus. What course remains under these circumstances if one should still be undecided? We may act on suspicion and send the patient to a different climate and surroundings without an absolute diagnosis, or we may employ tuberculin or the iodide of potassium to increase secretion around a disease focus or the Roentgen rays (see Dr. William's work). I feel that we do not frequently enough act on suspicion rather than on proof. This method is all right for the wealthy when frankly explained, and probably for those of moderate means; but for the poor, for those dependent upon daily labor, it is an impossibility. But, as I said years ago and as Brouardel has enunciated, of what avail will it be if we seek out those who are in the incipient stage, unless we may direct them to a place where health may be restored? Of course an altered mode of life, better nutrition, and appropriate medication may restore some, even within the confines of a large city. Some undoubtedly have sufficient vitality to overcome the disease without radical change; but for the majority there is a gradual or quicker further invasion. For these we need an increased accommodation in already existing sanatoria and new sanatoria. We may search out the tuberculous invalid in the beginning of his illness, but to his cry of "What shall I do?" shall we only educate him as regards the care of the sputum to prevent him becoming a source of infection to others? Or shall we in some near future be able to say that the municipality, the State, or some wealthy philanthropist has provided a place to which he can go with a fair chance of recovery? There are certain such sanatoria in the Adirondacks, as the one over which Dr. Trudeau presides, also the San Gabriel, and one projected at Stony Wolde. There exist also the Loomis Sanitarium at Liberty, that at Bedford, and some even within the confines of New York City, but these have not sufficient room; some are not properly placed for incipient cases and some could not take care of those unable to pay for support. Yet I am in favor of a plan by which we either seek out the tuberculous invalid or else advise him to be carefully examined by a competent physician, and, when this has been accomplished, may be able to tell him go here or there for his recovery.

Dr. E. L. Trudeau the other day told me that he had thirty-five on the waiting-list of the sanatorium at Saranac. Here I wish to digress so far as to voice a word of praise for the splendid work which Dr. Trudeau has accomplished at Saranac. I can recall the look of disappointment which came over his features when over twenty-five years ago I told him that he had incipient trouble in one lung. He had then a bright future opening before him in this city, but I do not believe that he would have accomplished more for the good of others than has been his privilege in that Adirondack wilderness to which he later went for the restoration of his own health. Through his instrumentality many have been cured and many alleviated. Moreover, through the laboratory, he has done much to protect the profession and the public from injury and deceit.

Let us then ask that provision shall be made in order that the consumptive invalid can be ac-

commodated. Fellows, you and I advise people ill with this disease to go to the country. Possibly, if of little means, they seek out a farmhouse in the mountain regions, where no one watches to see that they do not become source of infection to the proprietor, to his family or to guests. This is a matter to which either the State Board of Health or local boards should give heed, and of the necessity of action I have no doubt. But the action should be reasonable, based on those requirements as regards expectoration, disinfection, etc., which exist in the city. The provision of sanatoria sufficient to take charge of these people would obviate the danger and be of distinct educational value to the invalid. This Academy has already passed resolutions asking the city government to act in this matter. Several of the Fellows interested in this phase of to-night's topic will give you their views and also statements as regards sanatoria which they represent.

Whilst the sanatoria for incipient and curable cases should be situated in the best location, it is also desirable that hospitals should be made for those far advanced in the disease, where uniformity of action shall insure the destruction of the bacillus, give comfortable surroundings to the sufferer, and prevent him being a source of danger in the wards of a general hospital. Certain hospitals already exist, and the city, as I understand, pays for the board of such as can be received at these institutions, but I am informed that there are insufficient accommodations or improper surroundings.

Some Fellow may ask, how many incipient cases are there? I think that we may look at the number dying each year as answering that question to a certain degree, *i. e.*, the number that have hitherto begun and succumbed. It does not represent the number who recover, which should be added. So we may be sure that for the Borough of Manhattan or The Bronx there are over 5,000; and with those that recover it would not be unreasonable to suppose that between seven and eight thousand people are each year made serious victims to tuberculosis.

The diminution in number of people dying of tuberculous diseases is a matter of great interest and, as I have stated, can be and was ascribed to different causes. Certainly the statistics of Great Britain show a reduction of 50 per cent. of those dying of pulmonary consumption in the fifty years since 1851. The statistics in New York, as Dr. Biggs has pointed out, show a reduction of over 30 per cent. The same is true of other places.

The practical teaching is that we must urge that the greatest possible regard should be paid to sanitary conditions in the homes of the poor; that measures should be carried out such as are in force in New York; that hospitals should be provided which can accommodate the consumptive in his later stages, so that he may not infect others in a general hospital or in the confined walls of a small home; that sanatoria whether by increased accommodation in those existing, or by construction of new, should be provided from funds given, or taxed for; that cases should be sought out in the early and more curable stage; that means should be provided which shall insure to the invalid in the early stage good food as well as medicine, when the means are too restricted to procure this; that the public education as regards the true nature of the disease should be continually carried on; that the pocket handkerchief should not be used as a cuspidor; that all conditions which weaken the body are adjuvants to the bacillus, and hence the need of instruction as to the best means of maintaining health.

Tuberculosis in other situations without secretion is not dangerous to others, nor is tuberculosis of the lung, provided no bacilli are contained in the sputum. It is dangerous, however, to have people suppose because a single examination has shown no bacilli in the sputum that their expectoration is not a source of danger.

As regards views on the milk supply, I have already spoken, and consider it desirable to continue efforts for a pure product. The following is a communication from Dr. E. L. Trudeau, who was invited to take part in this symposium, but could not be present. He will thus give you his views and experience on the use of tuberculin and on sanatoria.

"Saranac Lake, N. Y., Dec. 10, 1901.

"My Dear Dr. Janeway:

"You ask me for a few words in regard to my experience with tuberculin and sanitarium methods.

"During the past ten years I have used tuberculin, both as an aid to diagnosis and as a specific method of treatment. As an aid to diagnosis I have applied the tuberculin test mostly in suspected cases of incipient tuberculosis of the lungs, and, with a few exceptions, the test has proved reliable and has enabled me to make a positive diagnosis before this could be done by the rational or physical signs alone. I have never seen any harm from the application of the test in the class of cases in which I have used it, or any evidence that it had had an injurious effect on the tuberculous process. But of late years I have confined its application strictly to apyretic cases, or such as were nearly so. It should not be used when there is much fever, because the results obtained in such cases are apt to be unsatisfactory and misleading, and because, too, it has seemed to me that it might be unsafe, not on account of any injurious effect on the tuberculous process itself, but principally because the hyperemia it induces may tend to aggravate and intensify the secondary infection generally present to a greater or less degree in patients with any temperature above 99.5° to 100° F. Pleuritic cases, enlarged lymph-nodes, cases of slight hemoptysis without rational or physical signs, and those patients in whom a depreciation of health exists with occasional slight disturbances of temperature and no expectoration, or expec-

toration in which the bacilli cannot be demonstrated, and slight or obscure physical signs, furnish the best field for its application.

"We know that tuberculosis may exist for months and even longer before it is possible to detect it by the usual methods, and an early diagnosis is of such vital importance to the patient and to the success of his treatment that any agent which will enable the physician to make the earliest possible diagnosis should be applied in suitable cases. The tuberculin test should not be used indiscriminately or carelessly, and it is but rarely necessary to employ it.

"I have also used tuberculin as a specific method of treatment and still consider it in the experimental stage. For this reason I have confined its application to patients at the Sanitarium only, where its effects could be carefully watched. Its application in the active types of the disease, and in sufficiently large doses to produce repeatedly marked reactions, is certainly inadvisable and often injurious. In the apyretic cases, in which there is no reason to suspect any secondary infection and when the patient's nutrition is good, if given in small and very gradually increased doses so as not to produce any marked rise of temperature, its use has been found free from danger and the proportion of recoveries in the patients treated has been encouraging.

"Susceptibility to the action of tuberculin varies to a most marked degree in different patients, according to idiosyncrasy and the extent and type of disease. In some the dose may be increased quite steadily without any constitutional disturbance, while in others the slightest attempt to increase the dose will be followed by the usual symptoms of tuberculin reaction. In these the treatment will have to be extended over many months, and will require the utmost patience and caution before any immunity to the toxin is obtained. The most painstaking care and skill are necessary in the application of this method. After the patient has been brought to tolerate fairly large doses, the treatment should be discontinued and resumed after an interval of two or three months; and, if susceptibility to a repetition of increasing doses remains, a course of treatment similar to the first should be continued until full doses are again tolerated. Cases thus treated seem to show somewhat less tendency to relapse than those which recover under climatic and hygienic methods alone, and would indicate that some degree of immunity had been induced.

"Although I have used several varieties of tuberculin in the treatment of these cases, I do not feel in a position to form any opinion as yet as to the relative merits of these preparations. The method of applying such specific treatment has thus far been purely empirical and will continue so until laboratory researches throw more light on the mechanism of artificial immunity against bacterial diseases. The recent researches on hemolysis and bacteriolysis promise to advance our knowledge on this all important subject. It is evident, however, that the production of a marked degree of toxin immunity does not necessarily mean complete bacterial immunity in the disease; this treatment is still in the experimental stage and it must be admitted that it is limited to cases which are likely to recover under the ordinary climatic and hygienic treatment for the disease.

"My experience in the application of sanitarium methods during the past eighteen years has steadily increased my faith in this mode of treatment as the best means at our command to arrest and cure tuberculosis and this is becoming now generally recognized. Eighteen years ago, when I undertook to make a practical application of Brehmer's methods by founding an institution in which these could be applied in treating persons of moderate means, the advantages which the sanitarium plan offers were not understood and I could with difficulty fill the few beds in my institution. At present the benefits of sanitarium treatment have become generally accepted and the applications for admission have increased so rapidly that, notwithstanding the growth of the institution, only a fraction of those who apply can be taken and several such sanitaria could be filled in a short time.

"The sanitarium insures to the patient the best conditions for his recovery, namely, the systematic application of the open-air and climatic method; the regulation of his daily life as to exercise, food, sleep, etc.; the proper care and treatment of his case during the exacerbations and accidents of the disease; protection from the dangers of secondary infection, and a thorough education as to the future management of his case and the care necessary to prevent his being a source of danger to others. All these advantages cannot be secured in open resorts.

"It has been urged as one objection to sanitaria that the expense attending this mode of treatment puts it beyond the reach of most patients who are dependent on their own exertion for support.

"This difficulty will have to be met soon by suitably endowed institutions and by the coöperation of the State. My own institution has met it for eighteen years, and confined its work *entirely* to patients who cannot pay more than five dollars a week, the deficiency each year being made up by subscriptions of those interested in the work. Such institutions, however, should not be left dependent on so precarious a support, but should be endowed and should offer a broad field for private philanthropy.

"Although the sanitarium is but one factor in the general struggle against tuberculosis, it is one of which we stand in great need. Sanitaria tend to limit the spread of this disease, and, if it is conceded that they offer the best chance of recovery, they should be placed within the reach of all. We need more sanitaria, not only for the working classes and for people of moderate means, but for the rich as well.

"Very truly yours,

"E. L. Trudeau."

THE RELATION BETWEEN BOVINE AND HUMAN TUBERCULOSIS.[1]

BY THEOBALD SMITH, M.D.,
OF BOSTON;
GEORGE FABYAN PROFESSOR OF COMPARATIVE PATHOLOGY IN THE MEDICAL SCHOOL OF HARVARD UNIVERSITY.

IT was with considerable hesitation that I accepted an invitation to discuss the relation between human and bovine tuberculosis at this time. The events of the past few months have shown that work, rather than opinions and words, is needed to put an important branch of our sanitary service on a firmer basis. The present occasion, I realize, needs a broad general statement of the problem and I have therefore omitted all technical details which I hope to incorporate with some new matter in a later paper. I furthermore realize that any position taken to-day may have to be somewhat modified when confronted with the results of experiments likely to be made in the immediate future on this now engrossing subject.

In general, my standpoint to-day does not differ from that of 1898, when I stated that a beginning had just been made by a recognition of the bovine bacillus as a race or variety of the mammalian stock of tubercle bacilli. With this point gained, the next step was to trace this bovine race into the human body and in this way gain an insight into its transmissibility. But it required the authority of a Koch, reversing his own long-standing conclusion, to awaken the lethargy of investigators, start new commissions, and arouse the opposition of public-health and other officials whose labors in the suppression of bovine tuberculosis seemed about to be blocked by forces always prepared to fight anything opposed to their personal and material gain. The situation is thus a very complicated one and views and opinions must somehow be accepted as working hypotheses to keep the machinery of public health in operation. With this fact as a guide I venture to review the situation and present views which have forced themselves upon me in endeavoring to get at the actual state of affairs.

That human and bovine bacilli are not necessarily identical occurred to me nearly ten years ago in watching the effects of the inoculation of bovine virus, infected milk and sputum upon guinea-pigs. The character and progress of the guinea-pig disease was highly suggestive of variations in virulence. Differences of this nature could be demonstrated only with pure cultures, because then the number of bacilli injected could be made approximately equal. When, in 1894-1895, I isolated and studied a bovine culture and one from an animal (*Nasua narica*) domiciled with a tuberculous man, the great difference in virulence as tested on cattle, as well as certain morphological differences, impressed me with the idea that distinct races of the tubercle bacillus existed. In 1896 these studies were again taken up in the then newly-established laboratory of comparative pathology of the Harvard Medical School and with the aid of the Massachusetts State Board of Health, and in 1897 a sufficient number of pure cultures had been isolated to enable me to test the bovine and the human cultures on cattle in parallel series. The coöperation of the Massachusetts Cattle Commission, through its chairman, Dr. Austin Peters, enabled me to test ten cultures on as many cattle. The outcome confirmed earlier studies and led me to state that we are justified, "if only to guide and stimulate further study, in establishing a distinctly human and a bovine variety of the tubercle bacillus."

The bacteriological method is not the only one which must be applied in putting the bovine bacillus into its proper place, but I think that it forms the key-stone of the arch without which facts and observations obtained by other means fail to hold their place. It will eventually serve to clinch arguments from all other sources.

Among these the records of clinical observation have occupied a very conspicuous place in the polemical literature of this subject. Placed by itself, the evidence which they present is, I think, inherently weak. We all know on what slippery ground we stand when we endeavor to trace the etiology of an infectious disease without recourse to the laboratory, with its more penetrating, analytical methods. The difficulties are greatly increased when we try to find with absolute certainty the source of infection in a subject as little under control in his movements as man and in a disease as insidious in its beginnings as tuberculosis. Clinical observations are, however, of very great value in forming the foundation of the bacteriological work and in guiding the bacteriologist to the most promising material for study.

The cases of direct inoculation as reported by Ravenel, Salmon and others cannot decide the question for us. An inoculation does not under all circumstances correspond to natural infection. Animals which are susceptible to certain diseases by inoculation do not necessarily contract them by cohabitation. Cowpox as a derivative of smallpox is an inoculable, but no longer a contagious disease. Again, the production of a limited amount of dead tissue in a wound may give the requisite impetus to an organism otherwise overcome or repelled at the start by the natural protective agencies. This brings before us that important, still unsolved problem, the phenomena attending the beginnings of infection, especially on the mucous membranes. It is quite possible that something interferes with the absorption of tubercle bacilli of bovine origin which lets human bacilli pass. Or, it may be that if human bacilli are absorbed only with difficulty in the intestines this difficulty is greatly increased for races of bacilli specifically modified by adaptation to other species.

One phase of the clinical problem which has created little attention is the possible infection of the human subject through the infected air of cow-stables. The great majority of cases of bovine tuberculosis are the result of infection

[1] Read at a meeting of the New York Academy of Medicine, Dec. 19, 1901.

through the air. In 1894 I carefully analyzed my autopsy notes of 88 cases of the bovine disease and found 85 with lesions of the thoracic organs. Of these 41 were evidently discharging tubercle bacilli from disintegrating foci in the lungs. Here a rich field of activity presents itself for the tubercle bacillus from cattle, but we have as yet no evidence whatever that human beings are infected in this way. Physicians favorably situated should give cases among dairymen careful attention and bring them to the notice of the bacteriologist for study.

Turning to the bacteriological aspect of the subject upon which I have already touched and taking into consideration the comparative studies of bovine and human bacilli made by the writer, Vagedes, Dinwiddie, Ravenel and Koch, we may now maintain without fear of contradiction that the bovine bacillus presents certain traits which serve to distinguish it from the great majority of bacilli isolated from the human subject. These traits or characters are not the exclusive property of the bovine bacillus as contrasted with those from human sources. I am merely emphasizing the constancy of such characters and not their peculiarity.

Morphologically the bovine bacillus multiplying on coagulated serum is uniformly short, never slender or slightly curved, as is the case with many human forms. Culturally it grows with great difficulty even on serum and I have not been able to make it grow on glycerin-agar at the start. Later these difficulties disappear under artificial cultivation. Other minor differences will, I think, be found in the near future. As to virulence this is quite uniform and very great for rabbits, whereas the majority of human cultures are not. The difference between human and bovine bacilli in their effect on cattle is now well established. Koch emphasizes the increased virulence of bovine bacilli for horses, swine and sheep.

Tuberculins made at the same time from cultures of both races have been repeatedly tested by me upon tuberculous guinea-pigs. No appreciable differences were noted in the effect produced. The tuberculins made from bovine cultures have been used by colleagues in the diagnosis and treatment of this disease in man, and, so far as I have had verbal communications, the results did not differ from those obtained from tuberculin made from human cultures. The same was found true in regard to its use on cattle. This identity of action must not surprise us. The subtle race differences could hardly be expected to survive repeated and prolonged boiling.

When we come to sum up the characters of human bacilli we find much less uniformity. The cultivation is as a rule easier, but variations occur. Some bacilli are so saprophytic in their tendencies that they grow from the start on glycerin-agar. Others refuse to do this. Some grow in moist glistening layers, others in the more common, dry, scaly or nodular masses. Bacilli from some cultures are short, resembling the bovine type, others are long and slender. The special form is as a rule preserved for years in cultures. Slight variations in the culture media, though they may have a temporary effect on the form, do not persist when we return to the original media. Only after years of cultivation changes of outline are occasionally noticed which, I think, are referable to the capsule. The virulence likewise fluctuates, but in none of my cultures was there any approach to the virulence of the bovine race. This may have been simply an accident. Vagedes, who isolated a series of twenty-eight human cultures, describes one which seems to have had the characters of the bovine race.

It was obtained from a girl, fifteen years old. She entered the hospital November 12, 1895. Both parents and a brother and a sister had succumbed to tuberculosis. The girl had both apices affected in June, 1894. In November, 1894, both lungs were extensively infiltrated. There was high hectic fever. Death ensued May 24, 1896. Both lungs and intestines were found involved.

It is somewhat remarkable that this exceptional culture of Vagedes, described in a work done under the direction of Koch himself, was wholly ignored by the latter.

Lartigau in a recent study of nineteen human cultures is inclined to regard one of them as of bovine origin.

A more thorough study of similar bovine-like bacilli to be found in the future and the inoculation of young cattle with them, in addition to rabbits, which species I regard as very valuable in making a preliminary distinction between these races, are obviously the next steps. If we should in any case of spontaneous tuberculosis isolate bacilli agreeing morphologically, in virulence, and in the character of the tissue reaction of the inoculated animals with the bovine bacillus, we must be prepared to concede the case as one of bovine origin. But, assuming this point to have been gained, there are other questions growing out of it.

1. What is the reason for so few positive infections with so much opportunity given for infection through dairy-products?

2. Is there any ground for assuming a modification of the bovine into the human type in the body of man and in this way accounting for more positive infections?

Taking up the first question I am inclined to believe that racial differences are operative in preventing the absorption of the bovine bacillus under ordinary circumstances by mucous surfaces. I say absorption, because in early life the type of disease approximates that of cattle, in that the bacilli tend to pass through the mucosa to lodge and multiply in the lymph-glands. This similarity must not be construed as pointing to an identity in the etiology. I am further inclined to believe that when infection does occur certain pathological conditions, among them traumatism, are present to favor it. Hence the belief which now seems to gain ground and which I voiced in

1898 that a few bacilli are harmless, but that the flooding of the digestive tract with bacilli from tuberculous udders is dangerous. In the latter case the bacilli are continually present and prepared to act at any time when the conditions become favorable.

The second question involves fundamental principles of etiology. To what extent is the bovine bacillus modifiable in the human body? Can it lose its identity therein? In order to state the case as fairly and judiciously as possible I presented this possibility of modification in 1898 in the following way: Can a long sojourn of the bovine bacillus in the human body lead to its gradual modification so that, entering by way of the digestive tract it may eventually appear in the sputum from the phthisical lung with only a moderate degree of virulence? The only facts we have at present to keep this hypothesis before us is the wide range of virulence of human bacilli, from saprophytized forms unable ever to infect a normal body, but only capable of acting as secondary parasites, to those forms approximating the virulence of the bovine type.

The modification of bovine bacilli in the same human body beyond recognition as such by the bacteriologist, if it ever occurs, necessarily presupposes a prolonged sojourn, probably of years, at the shortest. This again implies an initial resistance of the human system to the high degree of virulence of the bovine bacillus whereby only a mild type of tuberculosis results. While I accept the possibility that bovine bacilli may change if they multiply in the human body, I do not believe that such a change can take place excepting after a number of passages. The experiments of Vagedes and my own (unpublished) indicate that passages through rabbits do not perceptibly modify the bovine bacillus. Hence, in searching for a direct infection from cattle in infants or children for example, especially in the primary foci of the mesenteric glands, I am of the opinion that the bovine bacillus, if there, would be found with undiminished virulence. If it should become modified after a long stay in the body of resistant adults, future study may be relied on to find the successive stages of modification.

On the whole, if we accept the hypothesis of a modification in the same individual, we acknowledge thereby that the human body is capable of exerting a specific resistance over the bovine bacillus which largely neutralizes the high potency of the latter.

The modification of bacteria is not sufficiently understood at present to afford any sound basis for our attitude toward bovine tuberculosis. Used without restraint, it may be made to prove anything. Thus we may, with its aid, assume, as has been done repeatedly, that all human tuberculosis is bovine in origin. The highly potent virus entering the human body becomes attenuated and when it is discharged in the sputum it is no longer infectious, or it may lose its power to infect after several passages through human beings. Thus, the cow would be the source of all active virus. But the bovine virus is propagated from animal to animal chiefly in the same way, *i. e.*, through sputum, yet it does not appear to be losing its virulence. These hypotheses are given to illustrate the importance of steadying the flights of our imagination by chaining it to patient research within and without the laboratory and accepting only those premises which have successfully passed a severe scientific scrutiny.

Even the hypothesis that the bovine bacillus may become modified in the human body leads us to the same inference already reached—that a few tubercle bacilli are harmless, because the specific resistance which we must assume as existent would easily take care of a few bovine bacilli.

It seems to me that the only way to refrain from doing violence to the accumulated knowledge of bacteriology is to take the ground that the bovine bacillus, if it invade the human body, should appear as such in our cultures. Especially in the young should this be our guide, for tuberculous lesions of the abdominal organs, the mesenteric glands in particular, in children are not so old as to jeopardize the identity of a bacillus which maintains unimpaired for years its morphological and physiological characters in our cultures. The investigator, however, must keep before him the possibility that bacilli from one species grafted on another may become altered.

I am loth to leave this subject without calling attention to the possible aid we may derive from comparative pathology in a problem of such importance as this. Man is but one of a species of mammals, and in the search for fundamental principles we will fail if our studies are confined by the traditional boundaries of human pathology. When we come to the working-out of details we must return to the species the advancement of which we have in view.

As regards the transmissibility of bacteria, racially related among themselves, from one species of animal to another certain facts are at hand. There are several large groups or races of bacteria besides the tubercle bacillus which exercise a wide influence upon animal life. One of these comprises the races of the so-called rabbit-septicemia bacillus. Here we have bacilli indistinguishable from one another which produce epizootics among mammals and birds. But it is becoming more and more evident that these races are pathogenetically distinct. Only last year a striking illustration of this fact came to my notice. In conjunction with Dr. Cooper Curtice of the Rhode Island Experiment Station I isolated a race of this species from a highly fatal septicemia in geese which was of maximum virulence to rabbits. Although this species has been known for many years, since the earlier labors of Pasteur, to produce fowl-cholera, yet this particular race, so fatal to geese, had no effect on other fowls. Epizootics due to this bacterium among buffaloes, according to Von Ratz, did not pass to cattle, a species also subject to an infectious disease due to another variety of this bacterium.

Similarly the large group of pathogenic derivatives of bacillus coli affect many species of mammals and some birds and occasionally man in epidemics of meat-poisoning. These varieties maintain indefinitely their minor differences in cultures and in their activities they are sharply confined to a particular animal species. They are also differentiated by the agglutinins which they call forth in the immunized animal.

On the whole, the student of comparative etiology is inclined to regard the apparently identical, or, at most, but slightly divergent races of such bacteria as transmitted only sporadically and under special conditions to species other than the one in which they regularly cause disease only sporadically and under special conditions. Ordinarily the plagues or epizootics are sharply delimited in spite of the constant intermingling of different species of animals. Everything points to the theory that the particular variety produced by adaptation has gained something as well as lost something during this period of adaptation which makes it act successfully toward a certain species or a narrow group of species only.

Nor does it seem that a bacterium which has gained the power to act upon some large powerful species, like the ox, necessarily acquires thereby the power to attack smaller species. Thus, the bovine tubercle bacillus readily invades swine, but I have been unable to produce any effect on mice with it. We have within recent years had our attention forcibly called to the peculiar susceptibility of man to a disease of the rat, while spontaneous infection of species other than rats and mice by the plague bacillus is not yet confirmed.

Tuberculosis passes from man or cattle under certain conditions to dogs and cats. These animals will, I believe, furnish evidence of value in the problem before us. I have thus far had the opportunity of isolating and studying comparatively cultures from three cats and one dog. Should I draw any conclusion now I would say that they are from man. In any event we have here the important habit of flesh-eating to consider in its relation to the races of the tubercle bacillus.

The glanders bacillus furnishes still another illustration. The transmission of glanders from the horse to man is a firmly established fact. When we, however, take into consideration the large number of glandered horses found each year and the number of persons who come into close contact with such animals, the transmission from beast to man dwindles into a rare occurrence.[1]

Summing up the evidence from comparative pathology, I should say that we have no right to assume the indiscriminate transfer of bovine bacilli to man without thorough investigation. For we know that there are no *a priori* rules to guide us in predicting the susceptibility of any animal species toward any variety of micro-organism. There are no natural groups of animals which react alike toward bacteria. Each species is a physiological unit by itself, possessing certain relationships to other species which only experiment and observation may discover. The remarkable studies on hemolysis by Bordet, Ehrlich and others, pay ample tribute to this fact. It is equally obvious that we are not justified in accepting at present the sweeping, and what appear to me hasty, inferences drawn by Koch from his experiments that the bovine bacillus cannot invade the human body. As the broad student of infectious diseases Koch is correct, I think. The differences between bovine and human bacilli are too striking to lead the experimenter to any other preliminary conclusion at first. The study of details and the example before us of a great range of species occasionally invaded successfully by tubercle bacilli soon convince us that exceptions may occur and that the next step is to discover how often and under what conditions we may look for them.

The conclusions which may be drawn provisionally from the foregoing may be tersely stated under the following heads:

1. There is no evidence to show that bovine tubercle bacilli may indiscriminately infect the human subject.

2. There is some evidence that bovine bacilli have been isolated from human beings, that the successful transfer is uncommon and that it depends on certain conditions which need careful clinical and pathological study.

3. The evidence that such transmission takes place must be based on the isolation of tubercle bacilli having the characters of the bovine variety.

The attitude which these conclusions would lead us to assume toward bovine tuberculosis, at least for the present, does not differ appreciably from that now generally maintained. Periodical rigid inspection of dairy-herds, looking toward the elimination of all animals with suspicious disease of the udder or tending toward emaciation should be maintained. Beyond this sanitarians cannot well go, but every effort should be made to encourage publicly by suitable official recognition those who use the tuberculin test in purifying dairy-herds. Bovine tuberculosis is at best an agricultural calamity and its widespread diffusion and frightful ravages should arouse even the most conservative to bring about by individual effort rather than with the help of the public purse the rehabilitation of the dairy-cow.

[1] The Cattle Commissioners of Massachusetts state in their report for the year 1900 that 699 animals were killed as having glanders or farcy. There were reported to them during the same year two undoubted and one doubtful case of the same disease in man.

A PLEA FOR AN ACCEPTED NOMENCLATURE WITH REFERENCE TO THE CLASSIFICATION OF PULMONARY TUBERCULOSIS.[1]

BY J. EDWARD STUBBERT, M.D.,
OF NEW YORK;
PHYSICIAN IN CHARGE, LOOMIS SANITARIUM, LIBERTY, N. Y.; PROFESSOR OF PULMONARY DISEASES, NEW YORK POST-GRADUATE MEDICAL SCHOOL.

It is not my intention to present a long paper to explain theories or statistics; but rather

[1] Read before the American Climatological Association, 1901.

to set forth a few statements showing the inaccuracy of statistics as compiled to-day by various observers on tuberculosis, with the hope that the few ideas presented will provoke a discussion which will lead to the adoption by this Society of certain fixed definitions that shall be accepted as the basis upon which all statistics must be built in order to enjoy the confidence of the profession at large, and, especially, to merit consideration by scientific observers. No one, I believe, will doubt either the necessity for some common and positive basis upon which to build statistics and compute results, or the fact that there is no Society in this country or abroad the scope of whose work or the standing of whose members renders it as capable of deciding the question before us.

While statistics are, to some extent, unreliable, we cannot dispense with them. All conclusions must be derived therefrom, and yet great confusion exists, not only in conclusions so drawn by widely-separated observers, but among those intimately associated in work. In Massachusetts, we find Bowditch and Otis widely divergent upon the definitions "cured," "apparently cured," or "arrested cases"; while in New York we find as wide a difference of opinion between Trudeau, Baldwin and the writer in defining the difference between "apparently cured" and "arrested" cases. At the meeting of the Medical Board of the Loomis Sanitarium, held in New York about three years ago, there were present Drs. Polk, Loomis, A. A. Smith, W. Walker, Quimby, F. Miller, Chappell, Markoe, Beverley Robinson, and the writer, and yet no two men held exactly the same opinion as to where the dividing lines should be drawn between the incipient and moderately-advanced, or between the latter and the far-advanced stages of pulmonary tuberculosis.

There are, then, two conditions to be classified: (1) The condition of the patient when he comes under observation and treatment; (2) the condition that exists when he is discharged from the physician's care. Under the first heading, we have to deal with three, and, possibly, four, conditions: (*b*) Incipient; (*c*) moderately advanced; (*d*) far advanced; and, as a fourth, but naturally preceding the others, (*a*) variously designated as the "pretuberculous" or "prebacillary" stage.

By a large number of physicians, including such men as Baldwin, Trudeau, Knight, Babcock, and Bowditch, a "pretuberculous" stage is not recognized, but accepted as a general dyscrasia, such as might precede the development of any infectious disease; or, in other words, that would make infection possible. I find, however, that a few, *viz.:* Baldwin, Babcock, Bowditch, Brown, and Janeway, will allow the term "prebacillary" while objecting to the term "pretuberculous," although the majority do not think the term necessary. Another physician (Brown) considers the term "prebacillary" as synonymous with the incipient stage of tuberculosis; two others (Loomis and Ingals) see no difference in the meaning of the two terms.

The definition, gathered from the different ideas, is as follows: One in which tuberculosis is suspected, but where the symptoms are slight and bacilli can not be found in the expectoration. No one, however, has suggested what name shall be given to moderately or far-advanced cases in which tubercle bacilli are not present.

Others again, notably Ingals and Hance, affirm their belief in a so-called "pretuberculous" stage, which they define as follows: A condition in which the physical signs are indefinite, and in which there are loss of weight and strength, a rapid heart action, slight fluctuation in temperature, and sometimes a slight hacking cough.

In comparing notes on the definition of an incipient case, I find that Loomis, Trudeau, Knight, Babcock, Bowditch, Hance, and Ingals agree in all essential points, the following being the general idea gained by such comparison: Slight physical signs of limited extent in one or both lungs, with or without bacilli in the sputum, with or without slight constitutional debility or complications. Another authority (Hance) recognizes such a stage only when bacilli are present together with the usual symptoms; and another (Baldwin) claims that slight physical signs may be present or absent, provided the rational symptoms point to such a condition.

As to the definition of the term "moderately advanced," I find an agreement in the most important points in the opinions of Loomis, Baldwin, Trudeau, Hance, Knight, Babcock and Brown. The definition is as follows: More or less well-marked constitutional symptoms, with extensive signs in one or both lungs; or where there is only a slight amount of pulmonary involvement, with very severe rational symptoms. Another noted physician (Bowditch) is more reserved, and does not allow the term if there is evidence of decided consolidation or cavity formation; while still another (Ingals) relies solely on the extent of the physical signs.

There seems to be a general harmony in the definition of the term "far advanced," the composite idea being: A far-advanced case is one in which there are extensive physical signs with or without cavity formation, and in which there is severe constitutional disturbance, with or without complications.

Once we are finished with a patient, it becomes a question of even greater importance how to properly classify or index him. Shall we declare him "cured," "apparently cured," "arrested," or "improved"? Here again we find a wide divergence of opinion among competent observers. Very few are willing to declare a patient cured until a considerable length of time has elapsed without manifestation of any symptoms of the former disease. Ingals and Baldwin say that they require a patient to pass at least two years free from all signs of disease, rational or physical. Another physician (Loomis) makes the same requirement, except that no time limit is

given. Brown, Trudeau, Hance, and Knight do not use the term. Ingals and Babcock consider the term synonymous with that of "apparently cured." Bowditch classifies all such cases as "arrested." The term "cured" seems to be in disfavor with the majority of those whose opinions were received, while that of "apparently cured" appears to be the most acceptable.

Probably the greatest difference exists in the definition of the term "apparently cured." Some observers, such as Trudeau, Brown and Baldwin, place the time limit at three months, the writer at six months; while two others (Loomis and Hance) give no time limit; another one year; some others, two or three years; and one (Babcock) considers the term as synonymous with "arrested." A composite definition, leaving out the question of time, would be: Absence of all rational symptoms of disease, and disappearance of nearly all physical signs, or only those that would be indicative of scar tissue.

Apropos of this subject, I would like to submit the following statistics: Out of a number of cases at the Loomis Sanitarium, there was a reappearance of bacilli in seven cases after having been absent for three months; in three cases after having been absent four months; in three cases after an absence of five, six, and seven months, respectively, and in one case after disappearing for three and one-half years. However, in this last case it should in justice be stated that the patient has never been free from a condition of chronic bronchitis since she was seven years old.

We now come to the term "an arrested case." Again, there is great confusion as to the exact meaning of the word. As to the time limit, Knight and Trudeau agree that a quiescent condition should exist for several months, while Babcock and Bowditch say months or years. Baldwin places the time limit at two or three months, while Ingalls, Hance, and Loomis make no arbitrary rule.

As to the question of the presence of bacilli in the sputum, Brown, Babcock, Bowditch, Knight, and Ingals claim that bacilli must be absent; while Loomis, Baldwin, Hance, and Trudeau declare a case "arrested" while bacilli are still present, provided, of course, the general condition and physical signs justify such a term. A fair definition compiled from the opinions of the majority, leaving out the question of time, would be: Absence of all constitutional symptoms, including cough and expectoration and, therefore, bacilli; physical signs to show no further activity, although the limits of diseased areas may remain the same.

In regard to the last term to which I call your attention, namely, "improved," I am glad to say there is a very general agreement, a good idea being given by the following: Lessened or improved symptoms, local or general, or both. The only point of difference noted is that the majority require both local and general improvement, while a few require only an improvement in general condition.

Special work has grown so during the past few years, sanatoria and hospitals for the care of these patients are multiplying so rapidly, it would seem not only wise but imperative, from a scientific standpoint, that now, before the machine becomes too unwieldly and greater confusion has been created by lack of harmonious work, a more or less fixed definition of these various stages of pulmonary tuberculosis should be determined upon. Then statistics from all recognized sources can be worked together harmoniously and deductions of scientific value may be realized.

Supplement.

Prebacillary or Pretuberculous Stage.

"The condition of an individual whose family history, personal appearance, physique and age, experience has proven in the majority of cases, antedate the active development of tuberculosis. This stage is generally marked by persistent chloranemia, uncontrollable digestive disturbance, inexplicable rapid heart action, and progressive loss of weight."—H. P. Loomis.

"Prebacillary, meaning 'closed' or non-ulcerated tuberculosis, could include all cases described by certain writers as pretuberculous, which, according to their own description, are nearly always already infected, and the symptoms clearly secondary to such infection. Prebacillary is likely to confuse, as some very acute bad cases reveal bacilli. I should prefer to use it in a very restricted sense, or to dispense with it altogether. Definition: No symptoms and no bacilli. 'Pretuberculous' stage not necessary."—E. R. Baldwin.

"Not recognized."—E. L. Trudeau.

"Terms synonymous. Definition: Slight hacking cough, with some languor and emaciation, but no expectoration, and no distinct physical signs."—E. Fletcher Ingals.

"Pretuberculous stage designates the time antecedent to that in which physical signs and microscopical examination indicate disease; evidences of impaired health, loss of weight, strength, rapid heart action, slight fluctuation in temperature, general malaise, anemia, etc."—I. W. Hance.

"I do not think the term should be used; it is not properly applicable to any infectious disease."—F. I. Knight.

"There is no pretuberculous stage. There may be a prebacillary stage, if by this term is meant a stage in which no bacilli are contained in the sputum, but if there is tuberculosis there are certainly tubercles. Always supposing that by a pretuberculous stage was meant a latent tuberculosis."—R. H. Babcock.

"Great objection to term 'pretuberculous.' Prebacillary' stage is permissible because of cases in which tuberculosis is suspected, but no bacilli can be found, or only after a length of time. I do not like to use the term 'prebacillary.' "—V. Y. Bowditch.

"Prebacillary (excluding tuberculous pneumonia and miliary tuberculosis). Definition: In-

cipient stage before ulceration. Pretuberculous stage not necessary; often erroneously applied to the early part of incipient stage."—Laurason Brown.

"A prebacillary stage is one in which tubercle bacilli are absent, and frequently expectoration also. In a minority of cases there will be found by blood examination a certain amount of anemia, with loss of weight, possibly digestive disturbances, or physical signs may be totally, or almost totally, absent. By X-ray examination there must be shown a very slight haze, generally at one apex. Very often in these cases suspicious sounds may be elicited at the apex, which would not be detected without attention having been first called to them by the aid of the X-ray, and which would not be positive enough to base a diagnosis upon alone; and unless a shadow were discovered by the X-ray, we would not be justified in diagnosing them as cases of tuberculosis. I have never seen a case where suspicious physical signs were accompanied by a slight haze, shown by the X-ray, in which the subsequent history of the patient did not prove the correctness of the original diagnosis. I do not recognize the term 'pretuberculous.' "—J. Edward Stubbert.

Incipient.

"Slight localized lesion, with or without bacilli, and but little constitutional disturbance (fever, loss of weight, etc.)."—H. P. Loomis.

"Symptoms with or without early physical signs of limited extent in one or both lungs; with or without bacilli in the sputum; with or without slight constitutional debility or complications."—E. R. Baldwin.

"Cases in which both the physical and rational signs point to but slight local and constitutional involvement."—E. L. Trudeau.

"Involvement of apex low as the first interspace; a few râles, feeble respiratory murmur, and moderately harsh expiratory sounds."—E. Fletcher Ingals.

"Physical signs and rational symptoms are both slight; tubercle bacilli are present, and evidence of toxic infection small."—I. H. Hance.

Same as Trudeau.—F. I. Knight.

"A stage in which symptomatology and physical signs point to tuberculosis without mixed infection."—R. H. Babcock.

"Very slight signs in one or both apices; exceptionally in one spot elsewhere; little or no fever, and general symptoms are not those showing that the disease has taken any general hold upon the patient."—V. Y. Bowditch.

"Slight local, with little or no constitutional involvement."—Laurason Brown.

"Slight localized involvement of the lung, with or without constitutional disturbances."—J. Edward Stubbert.

Moderately Advanced.

"Lesion involving one lobe of one or both lungs, and in which there may be excavation; constitutional disturbances, anorexia, and loss of weight present."—H. P. Loomis.

"Symptoms are more or less marked with extensive signs in one or both lungs, beginning or actual cavitation, with or without constitutional debility or complications."—E. R. Baldwin.

"Cases in which the localized disease process is either extensive or in an advanced stage, or where, with a comparatively slight amount of pulmonary involvement, the rational signs point to grave constitutional impairment or to some complication."—E. L. Trudeau.

"Involvement as low as third rib, or a corresponding amount in another portion of the lung."—E. Fletcher Ingals.

"All rational symptoms present in severe form; evidences of a very active disease present over varying areas; may have small areas of disease with very severe rational symptoms, or the lesions and rational symptoms may both be very great."—I. H. Hance.

Same as Trudeau.—F. I. Knight.

"Stage in which there is mixed infection with signs of softening, but not any considerable destruction of lung tissue."—R. H. Babcock.

"Well-marked symptoms of a catarrhal condition of the lungs, with evidences of decided consolidation, or still less of cavity formation."—V. Y. Bowditch.

"Localized disease process extensive or in an advanced stage, or slight local pulmonic invasion, with rather marked constitutional involvement, or with complications."—Laurason Brown.

"More general consolidation of the lung with more marked constitutional disturbances and beginning of softening, or a single cavity without very marked constitutional disturbances, and with a small area of lung involvement."—J. Edward Stubbert.

Far Advanced.

"Extensive involvement of the pulmonary tissue, generally more than one lobe in each lung. Marked constitutional debility, and often complications are present."—H. P. Loomis.

"Symptoms of long standing with extensive signs with or without large cavities; marked constitutional debility and complications."—E. R. Baldwin.

"Cases in which both the rational and physical signs warrant the term."—E. L. Trudeau.

"Involvement as low as the fifth rib, or lower, with cavities."—E. Fletcher Ingals.

"All rational symptoms of severest type present; destructive process and progressively increasing areas of disease present in lung; complicating tuberculous diseases in other organs."—I. H. Hance.

Same as Trudeau.—F. I. Knight.

"Well-marked cachexia with or without extensive caseation and excavation."—R. H. Babcock.

No definition.—Laurason Brown.

"Consolidation, cavity formation, and symptoms of general infection are present."—V. Y. Bowditch.

"Extensive area of involvement with soften-

ing and excavation, and with marked constitutional disturbances."—J. Edward Stubbert.

Improved.

"Local lesion becoming quiescent, and constitutional symptoms decreasing."—H. P. Loomis.

"Lessened symptoms or signs; improvement local or general, or both."—E. R. Baldwin.

No definition.—E. L. Trudeau.

"Diminution of cough and expectoration, increased flesh, greatly diminished râles, and nearly normal temperature."—E. Fletcher Ingals.

"Some bettering of rational symptoms, with little or no progress of pulmonary lesions."—I. H. Hance.

No definition.—F. I. Knight.

"Vague and relative term. Would involve a lessening of all symptoms, and a gain in weight, without signs of extension of disease."—R. H. Babcock.

"General symptoms, cough and expectoration have diminished, with increase of strength, and possibly of weight, there being of course, different grades of improvement as slight or marked."—V. Y. Bowditch.

"Physical signs showing process less active, or general health improved, with symptoms relieved or abated."—Laurason Brown.

"An improved case is one in which the constitutional disturbances are removed, and signs of activity in the lung are reduced; the temperature is normal, or nearly so, and the patient able to return home and do a fair amount of work without exacerbation of existing symptoms."—J. Edward Stubbert.

Arrested.

"Lesion fibroid, with the physical signs of this condition; constitutional symptoms absent; bacilli present."—H. P. Loomis.

"Three months without fever or other symptoms of disease progression; partial or complete recovery of general health, without loss of expectoration or baccili."—E. R. Baldwin.

"Cough, expectoration and bacilli still present, but in which all constitutional disturbances have disappeared for several months, the physical signs being interpreted as indicative of a retrogressive or arrested process."—E. L. Trudeau.

"Absence of cough and expectoration; general good health; absence of all râles and marked diminution of dulness, with cessation of much of the bronchovesicular breathing formerly present."—E. Fletcher Ingals.

"Rational symptoms have almost wholly disappeared, and physical signs show no further activity in pulmonary lesions; bacilli still present."—I. H. Hance.

"Absence of all constitutional symptoms, pulmonary conditions being stationary, and therefore no longer active. Such an improvement must have existed for many months, or even years."—R. H. Babcock.

"All cases in which cough and expectoration have ceased, and where the general condition would indicate outwardly a return to health, regardless of the fact as to the exact condition of the chest itself, even though in many cases, so far as the physical signs themselves were concerned, the term 'cured' might possibly be justified. On account of the treacherous nature of the disease, am unwilling to use the term 'cured' until after the lapse of two or three years, possibly, when no return of the symptoms had been manifest."—V. Y. Bowditch.

"No activity in process in lungs, with absence of fever and other constitutional symptoms for at least two months."—Laurason Brown.

"Cases which have previously shown marked constitutional disturbance, but in which all constitutional disturbance has disappeared for several months. Physical signs interpreted as indicative of arrested process."—F. I. Knight.

"An arrested case is one in which all signs of activity and all constitutional disturbances have been absent for at least two months. Bacilli may or may not be present."—J. Edward Stubbert.

Apparently Cured.

"Absence of bacilli. The local changes recognized only those of complete fibrosis; no constitutional symptoms."—H. P. Loomis.

"Three months without any symptoms of disease progression; complete recovery of general health, and absence of bacilli or expectoration during whole period."—E. R. Baldwin.

"Cases in which rational signs and bacilli have been absent for at least three months, or who have no expectoration; any abnormal physical signs remaining being interpreted as indicative of a healed lesion."—E. L. Trudeau.

"Absence of all symptoms of disease, and disappearance of nearly all signs for a period of two years."—E. Fletcher Ingals.

"All rational symptoms have disappeared, and physical signs show no evidence, or but slight evidence, of scar tissue remaining. No bacilli."—I. H. Hance.

Same as Trudeau, except time limit should be one year instead of three months.—F. I. Knight.

"After lapse of two or three years, during which time no symptoms had been manifest."—V. Y. Bowditch.

"Practically synonymous with arrested. If lung were fibrous and tubercles calcareous, condition would certainly be cured. It is possible for old cheesy areas to be incapsulated and thus produce no local or general symptoms, yet the patient could not be said to be cured; it would constitute a relative cure."—R. H. Babcock.

"Abnormal physical signs absent or slight, indicative of healed lesion; absence, for at least three months, of constitutional symptoms, and of bacilli in sputum."—Laurason Brown.

"One in which the above conditions have existed for six months."—J. Edward Stubbert.

Cured.

"Absence of bacilli; no evidence of any localized pulmonary process (even fibroid) changes. Lungs normal."—H. P. Loomis.

"Two years without relapse. Not in favor of word."—E. R. Baldwin.

"Same as apparently cured."—E. F. Ingals.

No definition.—Hance, Brown, Trudeau, Knight.

"Synonymous with apparently cured."—R. H. Babcock.

"Only after a lapse of two or three years. I do not use term, but include all such cases under head of 'arrested.'"—V. Y. Bowditch.

"Those in which all constitutional signs of disease have been absent for two years and in which, for some length of time bacilli have not been found; and in which the physical signs are such as can be justly attributed to scar tissue, or are totally absent. Expectoration may or may not be present."—J. Edward Stubbert.

DISCUSSION.

Dr. Bowditch: As to the use of the term "pretuberculous stage," I must confess that I dislike it almost as much as that much-abused term "heart-failure." It seems to me that a case must either be tuberculous or it is not. I acknowledge that the gentlemen who recognize that condition are men whose opinions are entitled to great weight, but I cannot agree with them. As to the term "arrested," I think I stand alone, perhaps, in not using the terms "cured" or "apparently cured" when the patients are discharged from my care even when the general condition and physical signs would seem to warrant the latter terms. There will always be differences of opinion on this question, but I have seen so many cases discharged as "cured" or "apparently cured," and yet the day afterward, possibly, a hemorrhage or even death occurred, that I have adhered to the more conservative term thus far in my nomenclature. I was somewhat vague in my reply to Dr. Stubbert as to the length of time after which I was willing to consider the case cured. I am willing, however, to accept the time stated by Ingals and Baldwin; say, perhaps, two years.

Dr. Edson: Not being Germans we are deprived of the advantages of long words to explain our meaning. It seems to me the term pretuberculous or prebacillary stage is a good one. So much depends on the secondary infections, *et al.*, that the stage in which the tuberculous process is slight, one without any breaking-down in the covering as it were of the inflammatory area, as compared with that in which the breaking-down has occurred, and until which period we do not get the sputum, is one that may be substituted for the less wieldly one of "no bacilli in the sputum." Those cases, as a rule, have a longer and more manageable course as regards comfort and length of life than those in which general ulceration occurs.

Dr. Quimby: Ever since I began the study of physical diagnosis I have been impressed with the indefiniteness of the terms used. Some years ago, at a meeting of the Section on General Medicine of the New York Academy of Medicine, to test this question of uniformity in the use of physical diagnosis terms, I brought in several patients with well-marked signs, and, after marking a point on each chest where there was a distinctive sound, I asked the gentlemen present to listen at those points and to write down the name which they would give to each sound, folding the paper each time so that the one following could not see what had been written. Some five or six responded and when the lists were read, incredible as it may seem, no two men gave the same name to any one sound. At our meeting in Bethlehem, I read a paper on "Definite Records of Physical Signs," believing that such records can be made; but now we are discussing definitions of things which are indefinable. Our difficulty, and apparently the cause of our controversy, lies in the fact that, having applied names to confessedly mere probabilities or physical prophecies, we act as though the use of those names affirmed the probabilities to be demonstrated facts. We are attempting to affirm future conditions from present symptoms, which is, of course, impossible. Nevertheless, there is a certain something which we wish to talk about, and if we will simply agree among ourselves just what combination of symptoms and physical conditions these several apparently prophetic terms shall be accepted as indicating, we can then discuss these questions intelligently, at least among ourselves, and by sticking to them very likely bring others to accept our definition. I therefore move, Sir, that a committee be appointed to draw up a statement setting forth the combinations of signs and physical conditions which these several terms shall be understood to imply when used by members of this Association.[1]

Dr. Wilson: I want to second Dr. Quimby's motion, and my main object in doing so is that I may say a few words from the standpoint of one who is a general clinician, perhaps in contradistinction to the methods of those more interested in sanitarium work and who feel obliged, by the exigencies of their own every-day work, to use such terms, in order that a set of definitions may be brought into practice which will pass current among all interested in the subject. It seems to me that the whole set of terms we have been speaking of would indicate a want of recognition of the pathological changes which arise under different circumstances in pulmonary tuberculosis. In the first place, we do not recognize the fact that pulmonary tuberculosis is, in the beginning, a local infection, and that it often remains so, especially in cases where recovery takes place. Secondly, that there are cases that live with physical signs that are permanent, and which at no time can be shown to have had the tubercle bacilli in the expectoration. Then there are other cases of fibroid changes, starting perhaps in the pleura and extending to the lung, without giving rise to the presence of bacilli in the sputum, but

[1] The President appointed the following gentlemen as members of a Committee on Nomenclature, to report at the next meeting of the American Climatological Association: Drs. C. E. Quimby, E. R. Baldwin, F. I. Knight, V. Y. Bowditch, and J. Edward Stubbert.

leading to disturbances of the health in a lasting way. We must think, on the other hand, and I am now speaking of the difficulties we must encounter, of the recovery that often takes place which is permanent, but in which the most marked physical signs remain, such as cavities, deformities of the chest, etc. When we consider these things, the question of the presence or absence of physical signs must be considered as militating against the use of such terms as "improved," "arrested," "restoration of health," and the like. I want to say a word in this connection on a subject that has attracted my attention more and more in the last few years, and to which I have learned to attach a great deal of importance, a physical sign that is often the only one of an incipient pulmonary tuberculosis, and that is interrupted respiration. I have recognized this sign over and over again at a time when there was great question as to the patient's health, and at a time when no other sign could be elicited. I have found it in regions of the chest where other signs have appeared later. In the textbooks this sign has been given altogether too little attention. If we entertain the pathological view that pulmonary tuberculosis is an infection, then it is a mistake to make a subdivision such as "prebacillary stage" and "incipient tuberculosis," for every case that shows the physical signs or rational symptoms due to tuberculous infection is a case of tuberculosis from the beginning.

Dr. Minor: While willing to second Dr. Quimby's motion, I am rather pessimistic as to its outcome. Words, as the Frenchman said, are a means of concealing thought, and no two men will ever ascribe the same meaning to the chosen words. The reasons why these misunderstandings will always remain are that the examinations are made by different men and, while all are able, they disagree because of their different mental attitudes. As regards Dr. Stubbert's plan to classify the cases when discharged, that has been tried in Germany and failed; yet, although it seems almost hopeless, it is important to form some kind of a classification for those of us who have to report on the condition of our patients on discharge. I consider that two or three years at least ought to elapse before a case is considered cured, whatever the findings, and until then the case can only be called "arrested." I always put my patients before leaving to the test of taking violent exercise to see whether they will show any temperature. I have also laid considerable stress upon the restoration of the normal or nearly normal chest circumference, and the condition of steady weight, a weight which holds, although it is not necessarily the weight of previous good health.

Dr. Bonney: I have been for several years heartily in accord with the suggestion made by Dr. Wilson with reference to the undesirability of the terms that have been used. Four years ago I read a paper before this Association in which I made some allusion to classification. I am skeptical about the practical utility of the terms that have been suggested, and I think that each writer in reporting his cases should define his position in order that his readers can have a clear understanding of what he means. I have frequently seen cases that might be reported as incipient where the prognosis, I would think, was considerably less favorable than other cases that might be reported by the same man as advanced cases, if we depended alone upon the area or degree of pulmonary involvement.

Dr. Shurly: I am in accord with Dr. Quimby's motion and efforts. There is no use in taking trouble, and "crossing the bridge before we come to it." As long as we have to communicate with one another by language, the more nearly we can get to uniformity in every particular, the more intelligently can we discuss matters. I think this body is the one to make this effort; and though we may not succeed at first, we shall eventually if we keep at it. Some persons may not want to call a certain muscle the sartorius, while the majority of us would continue to know it by that name.

SOME NOTES ON THE PROPHYLACTIC SCREEN IN THE TREATMENT OF TUBERCULOUS CONDITIONS OF THE LARYNX AND PHARYNX.

BY STEPHEN W. WELLS, M.D.,
OF LIBERTY, N. Y.;
RESIDENT HOUSE PHYSICIAN, LOOMIS SANITARIUM, LIBERTY, N. Y.

HAVE you ever paused to consider the risk the laryngologist runs in the daily treatment of a large number of tuberculous throats? Perhaps not, so I take this opportunity to bring to your notice a screen designed to protect the face of the operator from all discharges from the throat of the patient under treatment. Many persons may have excellent control over the larynx and pharynx, but, notwithstanding this, at the most unexpected moment the patient may gag or cough and thus send out a considerable spray of the secretions from the diseased throat. Its usefulness is especially appreciated in those advanced cases of tuberculous laryngitis in which all muscular control has been lost, and the patient, in the effort to relieve himself, cares but little in which direction he coughs, and so often deposits his sputum outside the receptacle provided. The spraying of the physician by these sufferers might be considered simply disagreable were it not for the fact that we know that tubercle bacilli are present in varying numbers in the small particles of sputum thus thrown out. It was appreciation of this danger of infection to the doctor doing throat work at the Loomis Sanitarium that suggested the idea of the prophylactic screen to Dr. Stubbert, the Physician in Charge.

The screen consists of a sliding iron upright set in a weighted base; at the upper end of the upright is attached a metal frame holding a glass plate, 13" x 15", which can easily be removed and cleaned. The frame is attached to the upright so that when in use the right arm is but

one-third the length of the left arm. This arrangement permits considerable freedom in handling the instruments on the right, while the left hand is passed under the screen, thus easily controlling the laryngoscope.

I have used this screen for several years without the slighest inconvenience, treating daily an average of twenty to twenty-five tuberculous throats in all stages of the disease. I should be loth to do this class of work now without the screen, especially as I know of one case in which tuberculosis was contracted in this manner. To demonstrate further the utility of the screen, a series of experiments were made as follows:

The glass plate was rendered sterile by a thorough scrubbing with green soap and boiling water, after which it was immersed in 95-percent. alcohol, then exposed to the sunlight for a few hours. At the beginning of the throat treatment hour the screen was placed in position to receive the small particles of sputum coughed out or exhaled by the patients during the hour. These particles, some so minute as to be scarcely seen, others nearly as large as a small pea, were allowed to dry, then scraped off and collected in a test tube containing sterile water and allowed to stand until a sediment formed. The sediment was then stained in the usual manner for sputum

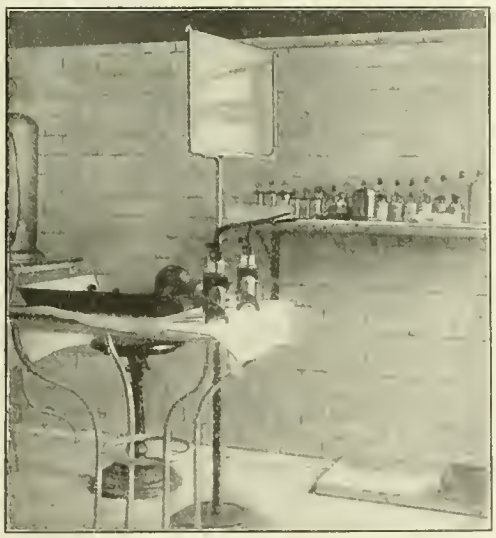

Fig. 1. The prophylactic screen.

and examined microscopically. Tubercle bacilli were found four times in a series of six experiments, varying in number from three to fourteen bacilli in each stained specimen. Several preparations were made from each of the collected scrapings.

From cultures made on glucose agar and grown in an incubator for three days, the following germs were isolated: Staphylococcus pyogenes aureus (most numerous), 1,000; streptococcus pyogenes, 1,000; micrococcus tetrogenus, 800; diplococcus pneumoniæ (A. Fraenkel), 1,000; bacterium pneumoniæ (Friedlander), 800.

It is said that a certain number of germs must find entrance into the tissues before they can overcome the natural cell-resistance of the structure and establish a colony. This number must, of necessity, vary considerably with the difference in resisting power in the individual. There-

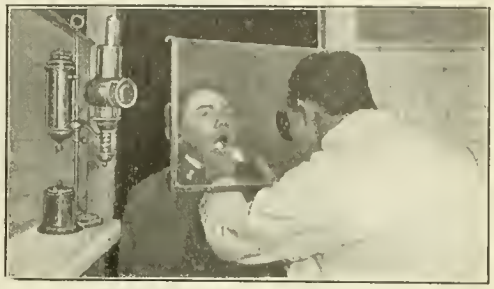

Fig. 2. The screen in use.

fore, a man, in the best physical condition, might for years treat tuberculous throats with impunity, all bacilli that he might inhale being promptly destroyed by the vigorous cell-life. But should he be unfortunate enough to contract an acute disease of the bronchi or lungs, or even a chronic condition causing congestion, the presence at such a time of tubercle bacilli might easily be a most important factor in determining the course and character of the disease. To meet this ever-present danger the prophylactic screen was brought forth without the knowledge of an earlier invention in which the screen, instead of being portable and solid, was suspended from the ceiling so as to hang between the physician and patient.

Our prophylactic screen has the advantage of being adjustable to any height; it can be easily placed in position; it does not interfere with the view of the larynx; it relieves the patient to feel that he cannot cough into the physician's face, and it thoroughly protects the physician. As to disadvantages, it has none.

THE PATHOLOGY AND THE ETIOLOGY OF PROSTATIC HYPERTROPHY: SUPRAPUBIC DRAINAGE AND MYOMECTOMY CONSIDERED AS METHODS OF TREATMENT AND CURE.

BY AUGUSTUS CHARLES BERNAYS, A.M., M.D., M.R.C.S. LOND.,

OF ST LOUIS;

PRESIDENT ST. LOUIS ACADEMY OF MEDICINE; CHIEF SURGEON TO THE LUTHERAN HOSPITAL; CONSULTING SURGEON TO THE CITY AND FEMALE HOSPITAL OF ST. LOUIS, ETC.

THE terrible sufferings which are caused by a lasting retention of the urine and the dangers to life which accompany it, as well as their relative frequency in old men, were well known to the physicians of ancient times. Hippocrates mentions this condition and adds that it is incurable. This opinion of Hippocrates was held by physicians for many centuries. Morgagni in his "Epistolæ de sedibus et causis morborum," printed in 1761, was the first to shake this pessimistic

opinion by his researches. He showed that the ischuria and concomitant difficulties of defecation were due to enlargement of the prostate. John Hunter corroborated Morgagni's assertion and devotes one chapter in his "Treatise on the Venereal," London, 1786, to prostatic hypertrophy. He mentions the difficulties of micturition in old men due to enlargement of the prostate and gives some illustrations of specimens. Everard Home in his practical observations on the treatment of the diseases of the prostate gland (London, 1811 and 1818), as well as Desault and Bonet, who were pupils and followers of John Hunter, also corroborates Morgagni's discovery of prostatic hypertrophy and its concomitant evils.

Up to the present time the etiology of prostatic hypertrophy has not been cleared up. A completely satisfactory explanation of the process has not been found. Sir Henry Thompson defined it as an "idioplastic tumor" in his lectures, which I had the great pleasure of hearing. Enlargements of organs during the early and middle life partake largely of an inflammatory nature or are found to be small-cell infiltrations. Knowing that old age somewhat inclines toward or favors the development of tumors, we are not surprised to find that a part of the sexual system may show a non-inflammatory enlargement at a time when this system, in all its other organs and in its functions, is undergoing a retrograde metamorphosis and is being more or less put to rest. However, let us remember that Sir Henry's definition is not explanatory in any sense and leaves the etiology of our subject in the dark.

Reginald Harrison seems to think that the hypertrophy is caused by overexertion or overwork of the organ the function of which he conceives to be that of aiding the bladder in the evacuation of its contents. He thinks that the main purpose of the prostate is to furnish a muscular support "primarily to the bladder and its contents and secondarily to the adjacent parts," and thus seems to regard enlarged prostate as a form of compensatory hypertrophy similar in its etiology to the well-understood hypertrophies of the muscular walls of the heart. Guyon's theory is opposed to this view, he regarding the hypertrophy as due to arteriosclerosis of the urogenital tract.

White agrees with Velpeau that in this disease we have an analogue of the fibromyomatous uterus. Sir Henry Thompson also favors this view, and I also think that the myoma of the prostate is analogous to myoma uteri and I think that it may be referred to developmental or congenital cell-nests which lie dormant in early life and are only incited to late enlargement by the incidents accompanying the functions of the genito-urinary organs in health and in disease.

Thus, we must admit that the etiology of prostatic enlargement is not understood and that the speculations which we have before mentioned are only a little more respectable than those speculations which bring diet, occupation, modes of living, abstinence and indulgence, sexual habits, gout, rheumatism or gonorrhea into direct or indirect etiological relation with the disease.

In most of the diseases in which the etiology is not cleared up the pathology is also incomplete. In the disease under discussion, however, the numerous researches by pathologists and by practical surgeons have almost cleared up the pathological anatomy of, and also added to the knowledge of, the functional disturbances which we observe as the symptoms of prostatic hypertrophy.

Cancer, sarcoma, tuberculosis, and echinococcus are rare diseases of the prostate which produce enlargement of the organ. Adenoma rarely occurs, but the hypertrophy of the prostate under discussion is of very frequent occurrence in the aged. In a study of one hundred men over sixty years of age, and taken consecutively as they came before me in my work in St. Louis, Missouri, I made a rectal examination in each with a view to determine the size and condition of the prostate. Of this number only fifteen complained of symptoms which were undoubtedly due to hypertrophy, but there was noticeable enlargement in thirty-one cases without any functional disturbance. These data, being based on a physical examination of the living patient, are probably not as reliable as the figures of Von Dittel and Sir Henry Thompson, who examined cadavers. The former found 22 per cent. and the latter 34 per cent. of enlarged prostates in cadavers of aged men, the exact ages not being known in all the cases. I have twice found enlargement of the gland, in the form of nodules, in boys; these observations were accidentally made upon two brothers, aged seven and nine years, who had died of diphtheria, and I am of the opinion that these small interstitial myomata will be quite commonly detected if looked for by those who have opportunities of frequently examining the prostate glands of young men and boys upon the dissecting-table.

Prostatic hypertrophy when microscopically examined is found to consist of an increase of the non-striated muscle cells and connective tissue which lie between the tubular glands. These latter are displaced by the hypertrophic muscle fibers, and in extreme cases are nearly absent. All of the fibrillary connective tissue found in enlarged prostate can be seen to originate from the perivascular sheaths.

We are justified in denominating the condition, which we find in most cases as myomatous hypertrophy, or, if the myoma assumes the shape of a tumor, we may speak of a myoma or fibromyoma of the prostate. In rare cases the enlargement depends upon a hyperplasia of the glandular structure, and then we may speak of diffuse or circumscribed adenoma of the prostate. The cases of acute swelling of the prostate partake of an inflammatory or infectious character and do not come under the scope of this investigation, but their existence is undeniable, although I have never witnessed an autopsy on a case of acute prostatitis.

Hypertrophy may be found in a diffuse form,

so that all parts of the organ are affected alike and there is an even enlargement of the whole gland, or tumor-like nodules, sometimes as large as a walnut, may be found in the form of hyperplastic knots of tissue which are plainly visible upon sections made through the organ. The ordinarily cylindrical urethra is changed into a vertical, narrow slit, sometimes one and a half inches long, having the enlarged lateral lobes on each side of the urethra, the sides touching each other in the median line. All parts of the organ may be hypertrophied, but there are certain parts which are favored and most frequently attacked. Mercier was the first to show that the hypertrophy usually begins at or near the isthmus of the gland and that it frequently forms what we call the middle lobe, which projects into the bladder near its neck in the form of a teat. Behind this lobe is the so-called recessus or cul-de-sac, in which the residual urine accumulates. In other cases the lateral lobes or only one of them may become hypertrophic.

The cause of the sufferings of prostatics, as well as the danger to which they are exposed, is the retention of urine which often occurs as a result of the hypertrophy. Hypertrophy of the prostate does not always lead to retention of urine, and it is often the enormously large prostate of unchanged contour which does not produce essential or severe troubles. The more localized hypertrophy affecting only one part upon one side, a symmetrical hypertrophy, as it were, or a small degree of enlargement, may cause severe troubles. This takes place when such parts of the organ are affected by the growth as are in close relation to the lumen of the urethra and project into the canal or neck of the bladder as they increase in volume.

A hypertrophy of the lateral lobes may and often does compress the urethra laterally and change it into a vertical narrow slit. When only one lateral lobe is more enlarged than the other the urethra is laterally displaced and pushed out of the median line.

Mercier proved that the hypertrophied teat-like middle lobe will obstruct the internal orifice of the urethra when the bladder is contracted for the purpose of micturition. He claims that an evacuation can only take place after a greater distention of the bladder by the accumulation of more urine is accomplished. But as soon as a part of the urine is discharged the valve will again become sufficient and prevent complete evacuation.

Thus, the residual urine is accounted for in a simple mechanical way, and we can easily understand the interruption of the stream and the tenesmus or strangury. We can understand the somewhat paradoxical phenomenon of incomplete evacuation while the patient can voluntarily pass urine. I have the conviction that this valve-like action of the middle lobe is only possible when it is very small and thin, but that it acts more like a dam when it is broad and stiff.

There are some cases in which the internal urethral orifice projects into the lumen of the bladder. It looks much like the portion of a virginal uterus when the hypertrophic growth of the prostate has grown upward and backward into the bladder. In a case of this kind the urethral opening will be closed or narrowed and will be projected into the cavity of the bladder as the muscular coats contract. The mechanics of this condition seem to be that the urine contained in the bladder will exercise an even pressure from all sides upon the cervix-like prostate, and the more pressure that is exercised by the muscular wall of the bladder upon its contents the more will the urethra be compressed and the more difficult will be the voiding of the urine. In this form of hypertrophic prostate there will be nothing to hinder the introduction of the catheter.

In old men there is always more or less of a cul-de-sac at the posterior lower part of the bladder, and we can readily see how an enlarged middle lobe must help to increase the size of this excavation. According to Dittel[1] and his assistant, Schustler, middle lobes of the prostate without enlargement of one or both of the lateral lobes is very rare. I have seen but one case of solitary enlargement of the middle lobe. According to my own observation the most usual form of prostatic hypertrophy is the bilateral enlargement of the lateral lobes in a nearly symmetrical form; when one lobe grows more than the other the one will bulge over and cause a depression in the other and the urethra will be compressed or completely closed so that the urine cannot escape. In this condition the mouth of the urethra is not the cause of the retention as much as the two opposite contiguous lateral lobes of the enlarged prostate.

The first bad effect of retention of urine, when not relieved by the catheter, is upon the walls of the bladder in a purely mechanical way by pressure of the mass of urine on the vesical wall. This, of course, causes dilatation of the bladder. The long-continued exertion of the muscular coat in trying to expel the urine will make greater demands on the muscular coat, and the constant efforts to overcome the obstacle will be responded to by a compensatory hypertrophy of the muscular layers of the bladder-wall. The result will be a peculiar netlike concentric hypertrophy of the bladder, which is known as trabecular bladder (vessie en colonne) so often seen at autopsies on patients who had narrow urethral strictures. The intravesical pressure frequently causes diverticulæ and pockets to form by the bulging out of the mucosa between the muscular trabeculæ.

A chronic and extreme retention of urine causes final dilatation of the ureters and of the pelvis of the kidney, and may cause an absorption by pressure of the secreting tissues of the kidney. When the entire urinary system or canal is thus dilated the valvular opening of the ureters which is effected by their oblique entrance into the bladder is overcome. The vesical orifices of the ureters are found widely patulous. The dammed up urine in the bladder, in the ureters and in the pelvis of the kidney form an uninterrupted column

[1] "Contributions to the Knowledge of Prostatic Hypertrophy," Medicin. Jahrbücher, Zeitschrift der K. K. Gesellschaft der Aerzte in Wien, Volume 24, 1867.

of fluid in a single large receptacle which is not divided into sections or divisions by a septum or valve of any kind. It is easily understood how under such circumstances an incipient purulent cystitis rapidly spreads to the pelvis of the kidney and to the kidney substance and will cause a pyelonephrosis.

The prostatic patient is usually first notified of his trouble by a difficulty in voiding urine. This difficulty grows as the hypertrophy increases. Some day retention of urine takes place. Symptoms of irritable bladder, frequent desire to urinate and pain, often very severe, are other concomitants. There may be a backache and tension in the region of the bladder. Even when spontaneous voiding of urine is still possible, the complete evacuation of the bladder may be impaired or interrupted from a want of power in the bladder-wall to contract. A part of the urine decomposes in the cul-de-sac, or in some pockets may become stagnant. Now, if by means of an unclean catheter or by the introduction into the bladder of some of the bacteria that always inhabit the anterior urethra, as was shown by Lustgarten and Mannaberg, the urine be decomposed, a catarrhal cystitis is soon developed. Decomposed urine causes a continual irritation and the cystitis spreads into the deeper layers of the bladder-wall, and in the presence of pyogenic bacteria we soon have a suppurative or gangrenous cystitis.

The greatest danger consists in the upward progress of the infection through the ureters to the kidneys. We often find that the infection spreads rapidly, as there is nothing to interrupt its progress from cystitis to pyelitis and nephropyelitis. Prostatics nearly all die sooner or later of pyelonephritis. The clinical picture is that of pyelonephritis and sepsis, except in some cases in which both kidneys are severely affected. In the latter event the patients die an easy death with uremic symptoms.

Suprapubic Cystotomy as a Method of Drainage in the Treatment of Hypertrophy of the Prostate; Myomectomy as a Radical Cure.—Suprapubic cystotomy is an operation which finds its application in (1) stone in the bladder, (2) tumors and growths, (3) hypertrophy of the prostate, (4) foreign bodies, (5) exploration of the bladder, and (6) drainage of the bladder.

It is a recognized and successful method of treatment in all of these conditions. The technic varies with the object in view. If it is desired to open the bladder merely for the removal of a foreign body the wound may be closed at once. If we desire to establish drainage the bladder must be kept open and a buttonhole may be established by stitching the mucosa to the skin. This fistula may be left open for weeks or months, but can be closed whenever the object of the drainage has been achieved. I will not describe the method of operating, because it is a simple trick devoid of danger in the hands of any experienced surgeon. I regard it as one of the minor surgical procedures and may assume that you will all agree to this proposition. A little reflection will show that the operation is only indicated when the bladder is full or can easily be filled with either air or water. The use of a rectal bag is unnecessary; in short, the operation is one of the simplest and easiest in all surgery. But one landmark is required, and that is the symphysis pubis behind which the bladder is always found and is easily punctured or incised with or without an intravesical guide.

I have to do with the operation to-day only in its relation to drainage as a method of treatment in prostatic hypertrophy and its most troublesome complication, cystitis.

Some ten years ago I got the notion that suprapublic drainage would cure prostatic hypertrophy. I reasoned that by the drain I could give complete physiological and mechanical rest to the bladder and that I could prevent the unrest due to the alternate filling and emptying of the bladder. We all know that Nature does its work of repair rapidly and painlessly if we can only give rest to the diseased organ; this axiom applies to all diseases without exception, including the many forms of infection. What is infection unless it be the unrest produced by microbes and their toxic products upon the tissues? Remove the toxic agents, the cells will be at rest and there will be no inflammation. The best definition of inflammation is the following: Inflammation is the response made by the tissues to toxic agents which invade them. I had often seen the mucosa of the bladder, which had become inflamed and ulcerated, return to its normal condition in a few weeks after a suprapubic section and drainage, and of course I knew that the cystitis accompanying many cases of hypertrophied prostate would disappear under the free drainage and the rest which was given the bladder by this simple operation. There can be no doubt on this point, but I had hoped that the hypertrophied prostate under the influence of rest would undergo absorption and atrophy and that a decrease in size which might be permanent would take place. In this latter hope I was doomed to disappointment.

It is true that in all cases of hypertrophy in which I made free permanent drainage for from three to ten weeks the urine became normal in color, the cystitis was much improved and in some cases entirely cured. It is also true that the enlarged prostate in each case became smaller and that the patients were exceedingly comfortable during the time that the drainage was kept up. One patient, Mr. T., who had a severe cystitis and who suffered extremely from his enlarged prostate, was so much relieved by the suprapubic drainage that his praise of the service rendered him was most grateful to my ears. "Why, just think of it! I sleep all night without getting up, do not have to use the catheter, have no temperature at bedtime and my appetite has returned." This patient died suddenly one morning as the nurse woke him; he raised himself up in bed to greet the nurse and fell over dead. In that case I was permitted to hold an autopsy and found that the prostate was quite large and that there was a large myoma in the left lateral lobe of the prostate and a small one of the size of a filbert in

the right lobe which projected across the median line. It seems clear to me now that no matter how long I might have drained this man's bladder the myomata would probably not have atrophied, and I am reasonably certain that the cystitis would have returned with the closure of the suprapubic drainhole and resumption of the catheter life. I may add that death was due to embolus and that the primary thrombus most likely came from a plugged vesical vein.

In several of my cases I had the great pleasure of seeing the prostatic hypertrophy become much reduced and remain in this condition for over a year, the patients regarding themselves as quite cured and throwing away their catheters. But I am compelled to report to you that with the exception of one man they all, twenty-six in number, were again obliged to take up the catheter life which had been abandoned for from a few weeks to fifteen months.

I am convinced that, as a radical cure of prostatic hypertrophy, suprapubic drainage is a failure. This result or conclusion might have been anticipated by reasoning from the basis of the facts which I brought out in the pathological part of my paper. It was there stated that hypertrophy of the prostate is a form of neoplasm or tumor. It is either a diffuse myomatous hypertrophy or it is a localized formation of nodular myomata, except in rare instances, which were alluded to in the first part of the paper. *Myoma in men or in women cannot be made to disappear by castration, nor can it be made to do so by giving to the parts in which it is located physiological and mechanical rest by means of suprapubic drainage.* I have had no chance to try the effect of castration and drainage simultaneously and hence cannot say what the result of this treatment would be. But there is no doubt that this treatment would be justifiable. The method must be tried. It is highly improper to condemn any rational procedure *a priori.* So long as we claim to be working upon a scientific basis, let us not condemn methods before we have tried them.

The following gives the results of my suprapubic drainage work and the fate of the patients so far as known to me: Cured, 1; leading a catheter life as before drainage, 8; operated on after Bottini and improved, 2; operated on after Bottini and not benefited, 1; operated on after Bottini and died on third day after the cautery of septic pyelonephritis, 1; operated on by perineal prostatectomy, 2 (of these one died of pyelonephritis on the fourth day after operation, the other seems to be cured); now being drained suprapubically for the second time, 1; died of pyelonephritis, senile gangrene or pneumonia, 6; disappeared and condition unknown, 4.

All of those whom I drained suprapubically were eloquent in their praises of the relief afforded to them. The patient who died of embolus was entirely relieved of his usual trouble and suffering by the drainage, and I am not sure that his death ought to count for much against the suprapubic operation. I regard suprapubic drainage as the best method of giving temporary relief to those patients who are not willing or not in condition to undergo prostatectomy. The cystitis can be cured by drainage and will not always return after the drainhole is closed. In conclusion I may say that the most rational procedure is myomectomy and that with our increasing technical experience it offers the best prospects of radically curing the evils which accompany prostatic myomata.

The word prostatectomy would indicate that the whole of the prostate is removed. This has not been the case in most of the operations that have been reported. In those cases in which the whole prostate was removed by way of perineal section, by the suprapubic route or by a combination of both methods, the mortality has been fearful. I am unable to give reliable figures because many of the total prostatectomies have been fatal without being put on record. The fact which stares us in the face in estimating the value of a new operation by statistics is that only the good results are reported and the bad ones buried. Hence statistics based on reports of a few cases by a few men are unreliable and always misleading, because they indicate a mortality which is too low.

The results of partial prostatectomy are much better as regards mortality and also in respect to functional improvement of the diseased organs. Thus, after a partial prostatectomy the mortality is very low and the function of voiding urine is preserved to a degree which is entirely satisfactory. This operation is the one which I have named myomectomy. Prostatic myomectomy is the operation which I think will be adopted very generally in the future for the radical treatment of hypertrophy. The name hypertrophy of the prostate is misleading and I would rather use the term myomatosis of the prostate. I have made sections of many specimens and parts of enlarged prostates and even in the hardest and most resistant tumors have been able to show non-striated muscle cells. I am convinced that the bundles of connective or fibrous tissue which we find in the sections are all derived from the connective tissue which accompanies the blood-vessels. This perivascular connective tissue surrounds the arteries and veins. It is known in biology as the lymph-sheath. All arteries and veins are surrounded by this lymph-sheath, which is continuous with the lymph-spaces around the capillaries. In my own sections I could prove that what fibrillary connective tissue we find is developed from the perivascular sheaths of blood-vessels entering the prostate. The principal enlargement is made up of bundles and nodes of non-striated muscular fibers which cross each other and intermingle with each other exactly as we see them in myomatous uteri. Sometimes the nodules can be easily shelled out of their beds, but oftentimes the process is very tedious and difficult. Morcellement is found to be the best way of extirpating parts of the prostatic lobes. The cases in which we find no well-defined nodules of myomatous nature, but merely an even hypertrophy of the

organ, all parts being equally enlarged, are uncommon. The nodular form is more frequently found. The number of cases I have examined is too small to permit of a more definite statement at the present writing.

In summing up my views on this subject an important and suggestive question arises in regard to the duration of catheter life. Reginald Harrison and Frank Lydston state that the average length of life of a prostatic patient after he has been initiated into the catheter life is four years. Both of these men have had a large experience and I am not inclined to doubt their statement. I know that with extreme care and under the most painstaking cleanliness, both of the person and of the catheters, two men surrounded by the luxuries of wealth have lived nine years and eleven years respectively and are in good physical condition. One of these men has had several attacks of cystitis and has passed through them successfully. The other one was operated on several years ago for a stone in the bladder by litholapaxy. My own experience would lead me to place the average length of catheter life at a longer number of years, but I am not in a position to speak authoritatively on this point. At any rate, catheter life is associated with much danger and an infection may at any time take place and even in spite of good management will often lead to pyelitis, to pyelonephritis and to death.

Knowing the dangers of catheter life and the shortcoming effect it has on the duration of life, we must deliberately decide the question as to its usefulness and we must not recommend it without great hesitation. The time when a prostatic first seeks our aid and assistance is the time when we must decide what to do. The first time a patient has retention is the time when he must either be taught to use the catheter for the purpose of drawing off the residual urine three or more times per day or the surgeon must decide to get rid of the cause of the trouble by some other means. I believe that in the long run much suffering and the unavoidable dangers to life and health which accompany prostatic hypertrophy can be spared to old men if myomectomy be performed in the beginning. The operation, if done early, before the patient's strength and recuperating powers are wasted, will be a safe one accompanied by a low death-rate. The technic of this operation known now as perineal prostatectomy I shall not describe in this paper, but I will say that the procedure has been frequently performed and is highly recommended by Bryson of St. Louis and Ferguson of Chicago. The methods which they have described and the methods of Von Dittel, Alexander, Harrison and others are before us.

My operation which I have called myomectomy does not aim to remove the whole prostate, but merely those parts of it which have impinged upon the vesical end of the urethra and have interfered with the function of the bladder in such a manner as to prevent complete evacuation of its contents. Myomectomy is a perineal partial prostatectomy and its technic is practically the same as that of the perineal prostatectomies which are now before us in recent surgical literature. The important technical point in the operation is that the connection between the mucosa of the bladder and that of the urethra must not be completely interrupted. A broad strip of mucosa should be left which connects the bladder with the urethra.

Conclusions.—In old cases of hypertrophied prostate palliative measures are sometimes preferable to radical measures.

Drainage of the bladder by the suprapubic route is preferable to perineal drainage in cases of cystitis, because the suprapubic method gives the sphincter apparatus more complete rest than the perineal buttonhole or fistula.

In recent cases of hypertrophy, in which the patient's health has not been injured by chronic cystitis or nephropyelitis, the dangers of myomectomy or perineal prostatectomy are minimal and in these cases a radical and satisfactory functional result can be achieved by myomectomy.

Operation must be regarded as a palliative measure intended to enable the patient to evacuate his bladder more completely than before. It will probably have a very limited usefulness and will be crowded out of practice as the technic of myomectomy or perineal prostatectomy is perfected.

Bottini's operation is dangerous and must not be undertaken unless most careful measurements have been made. It is often followed by extravasation of urine into the perineum and perineal section must be done in order to save the patient's life as soon as swelling of the perineum is noticed.

Myomectomy done through a median perineal incision is the operation which promises the best results and is the operation of choice. It is applicable to the greatest number of cases in which permanent cure may be expected, the kidneys being physiologically sufficient and unimpaired. The perineal fistula will always close spontaneously after the perineal drainage is discontinued, and if enough mucosa has been left there will be no stricture.

MEDICAL PROGRESS.

MEDICINE.

Incandescent Electric Light and Infectious Diseases.—Knowledge of the influence of sunlight on bacterial development first suggested investigations concerning the bactericidal power of electric light. Gebhardt and Aufrecht showed that animals infected with anthrax bacilli, pyogenic bacteria, tubercle and diphtheria bacilli and then permanently exposed to incandescent electric light resisted the infection much more successfully than did control animals similarly inoculated and not subjected to the influence of the electric light. It was as first too readily assumed that similar results could be obtained in human beings; Böder, however, showed that the rays of electric light were powerless to control acute or chronic general diseases in human subjects. Later experiments on animals by

Von Drigalsky produced evidence which contradicted that of Gebhardt and Aufrecht. KREBS (Berl. klin. Woch., Jan. 15, 1902) has reopened the question in a series of observations on mice and guinea-pigs. Mice inoculated with bouillon and agar cultures of anthrax failed to derive any benefit from exposure to electric light. Such exposure had no influence either for good or evil on guinea-pigs inoculated intraperitoneally with typhoid bacilli. Krebs concludes that there is no immediate prospect of the successful treatment of more or less acute bacilliary diseases by means of the incandescent electric light.

Diabetes and the Superheated-Air Treatment.—Diabetes mellitus is under all circumstances a most difficult disease to manage and has long since been considered practically incurable. D. WALSH (Med. Press and Circ., Jan. 15, 1902) reports a case which came under his treatment in January, 1901, with sugar in the urine amounting to 2.5 per cent. This patient underwent several courses of Tallerman's superheated-air treatment. As a result the sugar was decreased by April 15th to 0.71 per cent., and in June and July there was hardly a trace. The author makes the suggestion that this method be tried faithfully whenever available with the hope that in certain cases it may prove an active means of aiding the patient.

Bubonic Plague.—Among subhuman animals, the clinical course of the plague is very characteristic in rodents and monkeys. M. D. ZABOLOTNY (Archives des Sciences Biologiques, Vol. VIII., No. 4, 1901) while in India performed some experiments upon monkeys, as these approach so nearly the human species. He found that it was easy to produce in monkeys the two common clinical forms of the plague, the bubonic and the pneumonic, and that even after manifest symptoms of the disease a cure could be brought about by the use of Hafkine's antiplague serum. This cure in the course of plague is accompanied by phagocytosis in the buboes. Preventive injections of small doses of serum are to be preferred to large doses administered late, and immunity is only obtained by repeated small doses. The injection of the toxins and dead cultures of the bacteria was always accompanied by a marked leucocytosis.

Pancreatic Disease.—Diseases of the pancreas are as rare as they are interesting. DR. MURRAY of Cornell (Amer. Med., Jan. 25, 1902) reports three cases which do not, indeed, go very far to clear up the present obscurity of the subject, although they illustrate the possible sources of error in diagnosis. Of these, the most common are cholecystitis, perforation of the gut, and appendicitis. Murray believes that the most important symptoms are the presence of fat and proteids in the stools and of sugar in the urine, especially in the absence of jaundice and of intestinal disease, and the existence of tumor in the epigastric region. He says that whenever one meets with a case of acute epigastric peritonitis in which the etiology is obscure, pancreatitis should be suspected, and if the patient's condition admits of operation an early abdominal exploration should be made. Surgical intervention seems at present to offer the only possible mode of relief for this class of cases, although its exact methods and scope have not, unfortunately, been determined.

Acute Streptococcus Pharyngitis.—In four cases which occurred at one time in his practice, suggesting an epidemic, L. S. SOMERS (Medicine, Jan., 1902) found the same kind of bacteria, the same run of fever and bilious symptoms, and the same rapid disappearance of the membrane and all the symptoms except a feeling of severe exhaustion which depressed the patients for several days. The first thing to do is to determine whether or not the disease is diphtheria; a limited area of membrane formation or even entire absence of membrane does not rule out a Klebs-Loeffler infection. The usual streptococcic angina is very severe, but these cases were mild and closely resembled diphtheria. All the cases gave a history of previous catarrh. In no case did the infection occur twice in the same family or house. In some patients localized areas of epithelial necrosis, or herpetic pharyngitis after the vesicles have ruptured cannot be distinguished by the naked eye from false membrane. This is also slightly true of leucoplasia, mycosis and some of the aspects of syphilis. The small round epithelial plaques sometimes seen in influenza occasionally assume a membranous aspect, but they are limited in extent and do not tend to encroach on neighboring areas.

Nature of Typhoid Fever.—It has been evident for some time that the conceptions of the last thirty years with regard to the nature of typhoid fever would have to be modified. With the perfection of bacteriological methods, it has become more and more frequent to find authentic cases in which the intestinal symptoms, or at autopsy the intestinal lesions, have been subordinate or entirely lacking, while some other organ of the body has constituted the theater of disease. Such cases, with no bowel lesions, have been variously described as pleurotyphoid, pneumotyphoid, arthotyphoid, in brief, as abenteric typhoids. The typhoid lesions of the intestine would seem, therefore, to take their place with those of the other viscera, as merely secondary and local expressions of a general infection. The site of primary invasion still remains to be determined, and it is to this problem that EUGENE WASDIN (Amer. Med., Feb. 8, 1902) has devoted a very suggestive article. He asserts that in every case of typhoid he has been able to identify an area of lung presenting rather peculiar and characteristic signs. "On percussion the resonance is diminished, the note being higher. Auscultation will always give evidence of impaired vesicular breathing, a paresis. With these symptoms there are bronchial breathing, mucous and sibilant râles, and cough." The condition is usually unilateral, the lower lobes being most frequently involved. Expectoration is scanty and may be blood-stained. Pathologically, the condition is a typical hemorrhagic edema, both interstitial and alveolar. The bacteriological examination of the sputum is, unfortunately, not very illuminating. The physical signs are very evidently not those of an ordinary bronchitis, or of hypostatic congestion, and Wasdin regards the pulmonary foci as the primary colonizations of the typhoid germs. Thence they pass into the blood current, giving rise to the multitudinous symptoms characterized as septic or toxic, and with the aid of proper bacteriological precautions they may now be isolated from the blood. Finally, they become localized again in various tissues and organs of the body, either through an especial vulnerability of the affected structures or because the toxins have previously prepared the way for their invasion. Among such "terminal" expressions of the disease are to be reckoned the roseola, the intestinal ulcers, typhoid joints, and so forth. It will be seen that this theory, though apparently revolutionary in character, merely modifies the site of primary invasion, not the nature of the disease itself. It is certainly interesting and suggestive, but it can never find acceptance upon the basis of purely clinical evidence. Bacteriological demonstration must remain the final criterion and the only adequate proof of the primary localization of the disease.

Atonic Dyspepsia.—By atonic dyspepsia is meant the gastric derangement which results primarily from deficient activity on the parts of the muscular coats of the stomach. It is a disease which has received especial

attention from English clinicians, whose views on the subject are very conservatively presented. Wm. Carter (Birm. Med. Rev., Jan., 1902) recognizes two types, namely, atony with stagnation, in which the stomach fails to empty itself within the four to five hours intervening between two successive meals, but becomes empty overnight, and atony with retention, in which the stomach never empties itself. The disease may be secondary to nervous or secretory disorders of the stomach or to pyloric obstruction, in which case its significance is entirely subordinate. When it is the primary disorder, it is traceable etiologically to two groups of causes, namely, those acting directly on the stomach, such as excess in drinking and eating, hurried meals, large drinks between meals, and so on, and, secondly, to those acting indirectly by lowering of the general health and nutrition. With regard to the recognition of motor insufficiency, Carter asserts that Chomel's sign, gastric succussion, is by far the most generally useful. In obtaining it, one should see that the abdominal wall is thoroughly relaxed, and the shock transmitted by the fingers should be suddenly produced and strictly vertical in direction. When positive, it invariably indicates the presence of fluids in the stomach. It may be confirmed by the use of the stomach-tube, and by the salol test of Ewald. The grade of muscular paresis present is, of course, indicated by the length of time after the preceding meal during which succussion is still elicitable. The associated atonic dilatation, or gastroptosis, is revealed by the altered contour of the abdomen, by observation of the area over which succussion may be induced, and, if necessary, by inflation of the stomach. In the treatment of the milder grades, the chief indications in the way of diet are to avoid overdistention. One may either give small meals at shorter intervals than usual, a plan which is advisable when the appetite is poor, or one may give carefully selected but substantial meals at longer intervals than usual. With regard to the character of the food the two most important rules are: (1) Reduction of fluid taken with food to a minimum; and (2) the selection of a mixed diet, consisting of compact nutritious food. Fermentable foods are to be avoided. Drinks are to be taken when the stomach is empty, as on arising, or at bedtime. The most useful drug is strychnine; the best aperient, aloes or cascara. In atony with retention, it is best to put the patient to bed for a week or so. The dietary indications are those already outlined. In most cases, lavage of the stomach is essential for really good results and should be practised in the morning. Warm water, containing a dram of boric acid and from 15 to 20 grains of salicylic acid to the pint is the best medium. Bismuth, sulphocarbolate of soda, and resorcin may also be used.

Cure of Consumption.—The late British Congress on Tuberculosis has been most fruitful in important recommendations for treating the disease. B. H. Steede (Med. Press and Circ., Jan. 8, 1902) discusses the value of sanatoria for the isolation and treatment of these patients. These institutions have already proven their value beyond dispute. They are a great help, partly by the cures certainly effected, partly by the isolation for the time of the cases, and finally and chiefly by the knowledge they spread of the nature of the disease, of the measures necessary to avoid infection. There are, however, patients who are not suitable for treatment in sanatoria and the care of these is most important. By their circumstances and their habits they spread the infection more than all others. They should therefore be lodged in special institutions and their houses disinfected. Homes for the incurable consumptive poor are the most pressing necessity. In considering the mortality of tuberculosis the need of such institutions has, of course, been felt ever since the infectious nature of the disease was established. Latterly the practicability of these institutions has been considered. Dr. Ring, of the State Government of Michigan, a delegate to the Congress on Tuberculosis, read a paper as to the family history of 242 cases. He thinks that parents with consumption tend to confer immunity rather than predisposition to consumption in their children. The public are generally convinced, however, that the disease is hereditary. The point is by no means settled and the chances are all on the negative side of the question. What the public must now believe is that it is a disease which is liable to attack successive inmates of the same house rather than successive members of the same family unless they are all living together. Coates of Manchester has recently carried out similar investigations with these conclusions as to the dust taken from three classes of houses. He found tubercle bacilli in the dust of dirty houses inhabited by consumptives who took no care whatever with regard to the disposal of sputum, etc.; he found the tubercle bacilli in the dust from houses which were apparently clean and well kept, but which were inhabited by consumptives who took no proper precautions; he found no tubercle bacilli in the dust from very dirty houses which were known not to have been inhabited by consumptives for several years. In France an institution has been founded called the Antituberculous Dispensary. It has been established for several years and endeavors to give the best possible medical service in the homes of all tuberculous patients whose necessary cessation from work would condemn them to utter distress. The consumptive poor must receive help in some form or other from the community. This dispensary systematizes, directs and increases the help given by private or public benevolence; sees that the danger from infection is minimized; provides good food and gives aid as far as the funds allow; and improves the surroundings of the patient so as to benefit him and protect his friends.

Serumtherapy in Acute Rheumatism.—In a case of acute articular rheumatism involving the wrists, elbows, knees and ankles and characterized by chills and a very irregular temperature, suggesting a pyemic condition, R. J. Chipman (Med. Rec., Feb. 1, 1902) used salicylates, opiates and local fomentations without benefit, the patient's condition after two weeks becoming very serious. The chills were followed by high temperatures, 104° to 105° F., and profuse sweats. The cardiac action became rapid and weak. Three injections of ten cubic centimeters of the antistreptococcic serum were made and both the general and local symptoms rapidly improved, although the patient seemed previously to be in a dying condition.

Cause of Dengue.—Since the mosquito has been found to be the medium by which malaria and yellow fever are transmitted from one patient to another, this little insect has been suspected of being instrumental in propagating several other diseases. In the study of dengue in Beyrouth, Syria, H. Graham (Med. Rec., Feb. 8, 1902) found that if the patient sick with the disease was kept in a room free from mosquitoes there was no danger of communicating the disease to others. Literature shows that for many years certain miasmatic influences were thought to be required for the propagation of the disease. In the further investigation of the etiology of dengue, experiments in inoculation were made and when persons were exposed to the bites of mosquitoes that had previously bitten dengue victims, these persons in time developed typical attacks of the disease in from four to six days. Furthermore, infected mosquitoes were taken to a mountain town where dengue seldom appeared and two healthy boys exposed

themselves to their bites. One developed an attack of the malady in four days and the other in six days. The blood of various patients was then closely studied and more positive proof of the cause of the disease discovered. A plasmodium similar to that of malaria, but differing from it in many essential characteristics, was found in over 100 cases. This plasmodium had a much slower development than that of malaria, so that fresh specimens would not last long enough to trace the development very far. They grow within the red blood-cells, at times sending out pseudopodia and on the fifth or sixth day the corpuscle is broken up and the plasmodium seems to degenerate. No pigment is formed within the protozoon at any time. In several cases presenting severe second or third attacks flagella were seen in the blood showing a distinct undulatory movement by which they progress, some of them having clubbed ends. Although the cycle development has not yet been followed through the mosquito there seems to be little doubt but what dengue also will be proven to be communicated only by this insect.

Yellow Fever and the Mosquito.—The theory, recently promulgated and based upon work done in Havana, that the mosquito plays as important a rôle in yellow fever as in malaria is strongly opposed by J. P. Oliver (Texas Med. Jour., Jan., 1902), who finds that the evidence that the disease is introduced into towns by goods or merchandise packed in boxes or trunks, or by persons in whom the disease is incubating and develops after arrival, is so overwhelming that it is not necessary to draw in the mosquito as intermediary host. Accepting the mosquito theory, it is hard to understand where the insect gets its poison with which to inoculate its first case and to explain those cases cited in which a strict quarantine was maintained and no yellow fever appeared until this quarantine was broken, despite the fact that the mosquito was abundantly present and had free access to those afflicted. Examples are also cited in which sickness could be directly traced to certain infected articles, and these facts render the mosquito theory altogether untenable.

Echinococcus Disease in North America.—A very interesting review of over 200 cases of echinococcus disease observed in this country is given by I. P. Lyon (Virg. Med. Semimonthly, Jan. 10, 1902). He finds that 74 per cent. of all the cases occur in young and middle-aged adults and that under ten years the disease is a rarity, in spite of the fact that young children are apparently most exposed to the infection. The disease is also rare after the age of sixty. The proportion of males to females is 3 to 2. Forty per cent. of the cases were Icelanders living chiefly in Manitoba; Germany shows 15 per cent., Italy 14 and Great Britain 9 per cent., while those of native birth also amounted to 9 per cent. The relative immunity of Americans is seen even among the American-born children of the Icelandic immigrants. The disease prevails chiefly in the lower classes, particularly among the ignorant and slovenly. The State of New York furnishes one-quarter, Canada one-third of all reported cases, and it is noticeable that few are found in the Western States, where it would seem that conditions favorable for the spread of the disease exist. The liver was found involved in 73.7 per cent. of the cases; next to this organ the order of frequency is as follows: Omentum and mesentery, lungs, spleen, kidney and bladder. Some unusual localities were found, such as hernial sac, nasal septum, pericardium, head of humerus, brain, eye, prostate, testicle, pancreas and pleura. In only four cases was the multilocular type noted. The diagnosis seems to have been based upon the gross appearance, the site and the presence of daughter cysts. The important question, if the disease is increasing, cannot be answered authoritatively at present, since the statistics are of too recent years. Statistics of animals show great variations, but it is quite likely that the disease is not evenly distributed and that endemic foci exist. Concerning prophylaxis it may be said that the disease can be exterminated by enforcing proper sanitary regulations at the slaughter-houses and by guarding against too intimate intercourse between dog and man.

Turbid Urine in Eclampsia.—In two cases of eclampsia and one of uremia, all three ending fatally, H. Cramer (Münch. med. Woch., Jan. 21, 1902) found a peculiar milky urine voided, suggestive of chyluria. The close chemical and microscopical examination, however, showed that the milkiness was due to innumerable suspended particles, albuminous in nature. Since in all three cases very much albumin was present on boiling, it is possible that the strange phenomenon was due to a supersaturation with albumin, especially since the urine cleared up upon sufficient addition of water. It is also possible that the suspended albumin is of a different nature than the dissolved albumin. From a prognostic point it seems that death is not far off when the emulsion is voided.

A New Theory of Diphtheria.—A good deal of difficulty has always been experienced in sharply differentiating true and pseudodiphtheria bacilli on a morphological basis, and F. Schanz (Münch. med. Woch., Jan. 14, 1902) is of the opinion that their only difference lies in their power to produce toxins. It has been found, however, that the blood of most people contains a certain amount of antitoxin which may result from a previous diphtheria, but may also come from the harboring of a virulent diphtheria bacillus, which strangely does not lack in antitoxin-producing properties, on the mucous membranes of the nose or other organs. The degree of severity of a diphtheria may thus depend on the amount of unconscious immunization which has constantly been going on from a virulent bacillus.

THERAPEUTIC HINTS.

Rheumatismal Pleurisy in Children.—

℞ Sodii salicylat..... 3.0 (gr. xlv)
Syrupi .....30.0 (℥i)
Aquæ .....75.0 (℥iiss)

A tablespoonful every two hours for a child of six years. Gram 0.50 (gr. viii) of salicylate should be given each day for each year of age.—Comb in Le Progrès Médical, Jan. 18, 1902.

Adulteration of Drugs.—After examining numerous samples, L. F. Kebler (Amer. Jour. of Pharmacy, Jan., 1902) reports as follows: Acetamide, which keeps better, is often sold for ammonium acetate; precipitated calcium phosphate contains up to 30 per cent. of calcium carbonate; chromic acid may contain 60 per cent. of acid sodium sulphate; powdered podophyllum may be sold for podophyllin; vanillin may contain up to 90 per cent. of benzoic acid, or 50 per cent. of acetanilid; oil of cassia is adulterated with kerosene; the oils of peppermint and thyme with oil of turpentine; balsam of copaiba with gurjun balsam; aconite root with tormentilla; extract of lettuce is substituted for lactucarium; inferior aloes for the official article; inferior gums for acacia and tragacanth. Gross adulterations are very little practised at present, detection requiring the use of test-tube, analytical balance, microscope or polariscope.

The Eye in Variola.—Almost any eye condition may complicate smallpox, but practically the only one that is likely to lead to blindness is a pustule or abscess of the cornea. M. Dufour (Revue Médicale de la Suisse Romande) has had great success in treat-

ing such a condition by the subconjunctival injection of a 1-2,000 solution of mercuric bichloride, repeated at three day intervals. Hypopyon disappears, the opalescence of the cornea clears away, and the site of the abscess tends to cicitrization.

Arsenic in Tuberculosis.—This drug is especially advantageous in the early stages of tuberculosis, and in the chloro-anemic forms common in young women. Preference is given to its employment hypodermatically, a solution of 5-10 centigrams to the cubic centimeter being administered once daily. By mouth it may be given in concentrated solution, containing 1 centigram to 5 drops:

Cacodylate of soda.....	0.40	(gr. vij)
Distilled water	10.00	(ʒ iiss)

Or in pill form:

Cacodylate of soda.....	0.025	(gr. ⅓)
Extract of gentian.....	10.000	(ʒ iiss)

For one pill.

It may also be administered by rectum:

Cacodylate of soda.....	0.40	(gr. vij)
Distilled water 200.00		(ʒ vj)

Inject 5 c.c. in rectum twice daily.

The treatment should be intermittent, however administered; generally hypodermic injections are given once daily for eight days, and suspended for eight days; or injections may be given two or three times weekly.—Jour. d. Méd. d. Paris, Jan. 12, 1902.

Pessaries versus Operations.—The general practitioner too often tells his patients that a major operation is necessary for some displacement. When a woman has been told that she needs an operation, she rarely rests easy until it has been performed. The measures required to hold the uterus in its normal position are as follows: Hygienic regulation of food, dress and evacuations, massage for stimulation of the parts and relief of congestion; local and general treatment for the reduction of congestion and inflammation; the use of pessaries, or operation. Tenderness from inflammation, adhesions, cicatricial bands, the weight of a large tumor or relaxed pelvic floor may contraindicate the use of a pessary. Therefore the pessary, as a rule, can only be used when the displaced organs are replaceable or can be made so, and when the pessary is efficient in holding them in place and can be worn without discomfort. The use of the pessary depends on the rule that if the cervix is normally placed, the body of the uterus will take care of itself. A suitable pessary should allow the patient to ride, jump, dance and carry on the marital relation. When the displacement is due to inflammation this must be reduced by local treatment before the pessary is adjusted. If the inflammation is due to the displacement, the pessary may relieve all the trouble. While a pessary is worn the patient should use cleansing douches of a quart or two of hot water daily, and every month or two should be cared for by the physician. Repair of lacerations of cervix and perineum may aid. Round ligament operations are often of only temporary benefit. Ventral fixation may cause as much discomfort as the displacement has caused intestinal obstruction, and may interfere with pregnancy reaching full term.—G. W. Kaan in Annals of Gynecology and Pediatry, Dec., 1901.

Puerperal Septicemia.—It is common to see patients, writes F. A. Higgins (Annals of Gynecology and Pediatry, Dec., 1901) with symptoms of impending septicemia following abortion, with a temperature of 103° to 105° F., pulse 120 to 130, uterine tenderness and foul discharge, who after complete curettage with antiseptic douching and regular régime, return to normal conditions in from one to three days. Such cases have not reached the stage of general septicemia and the infection is removed by local treatment. Of 38 cases of profound septicemia at the Boston City Hospital, 11 followed abortion and 27 followed labor. Sixteen died. The most important complications were septic pneumonia, endocarditis, mania, phlegmasia dolens and purpura. Antistreptococcus serum was administered to five patients, only one of whom recovered. The serum seemed to have a very depressant effect. Fresh lacerations of the cervix were very common among the infected women and the writer believes these the avenues for germ entrance. There is no routine treatment, but if the uterus remains large and soft, if there are retained products, and if there is a profuse foul uterine discharge, curettage will remove the focus of the disease and promote involution. If there are no retained products and the uterus is firmly contracted, curettage is useless. Following curettage weak antiseptic intra-uterine douches of bichloride, normal saline solution, or formalin, one-half to one per cent., have given good results.

Acute Bronchitis.—

℞ Tinct. scillæ.....	0.7	(♏x)
Syr. codeinæ.....	20.0	(ʒv)
Extract. hyoscyami.....	0.05	(gr. i)
Aq. aurantii florum.....	10.0	(ʒiiss)
Julep 120.0		(ʒiv)

Dose: One dessertspoonful.—G. Lyon in Le Progrès Médical, Jan. 11, 1902.

Non-diphtheritic Membranous Angina.—Gauchez recommends the local application of

℞ Camphoræ 20.0		(ʒv)
Ol. ricini.....15.0		(ʒiv)
Alcohol 10.0		(ʒiiss)
Ac. carbol. cryst.....	5.0	(gr. lxxv)
Ac. tartarici.....	1.0	(gr. xv).

Dropsy.—In general dropsy from heart or kidney disease, Shoemaker considers the following valuable:

℞ Potass. bitart.....	15.5	(ʒss)
Extr. convallariæ fl.....	6.0	(ʒiss)
Syr. simplicis, q.s. ad.....120.0		(ʒiv)

Indigestion.—A good preparation in chronic hepatic derangements, especially of malarial origin, and for sick headache depending on indigestion is as follows:

℞ Ext. iridis fl.,		
Ext. hydrastis fl., aa.....15.0		(ʒss)
Elix. aromat.....30.		(ʒi)

Dose: A dessertspoonful in hot water before meals.

Respiratory Failure from Anesthetics.—First remove any possible obstruction to the breathing, open lips by finger or mouth-gag, and get lower jaw forward till the lower teeth are in front of the upper. It is a common mistake for the beginner not to place his fingers really behind the angle of the jaw, but on the lower surface, so that pressure does not push the jaw forward. Keep the tongue forward and make sure that it is not caught in the teeth. If necessary catch the tongue and pull it well forward, but do not keep forceps tight on the tongue for any length of time, as they will injure it. If the tongue has to be kept forward, better pass a ligature through it instead of using forceps. Rubbing the lips briskly with a towel or the application of ammonia to the nostrils is often sufficient to reestablish breathing. If the corneal reflex is present give more anesthetic; if absent, give more air. If the obstruction to breathing seems due to mucus, the pharynx should be cleared out with a sponge on a holder and the anesthetic changed to chloroform or the A. C. E. mixture. In an extremity, rhythmic traction of the tongue may be effective. If these means are of no avail, artificial respiration must be promptly resorted to. The one drug that may be given is strychnine hypodermatically.—Probin-Williams in "Administration of Anesthetics."

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SATURDAY, FEBRUARY 22, 1902.

THE SMALLPOX VERSUS DR. PFEIFFER.

A smallpox case destined to be famous in the history of the progressive victory of therapeutic science over the ranks of ignorance, prejudice, quackery, and sentimentalism, is that of Immanuel Pfeiffer, M.D., of Boston and of Bedford, Massachusetts. This physician was certainly one of the most vigorous and intelligent of the antivaccinationists, yet he was very certain, in his own mind, that smallpox is not a contagious disease, but that it is rather the product of bad hygiene and evil diathesis. This belief in the mind of a medical man properly ratable as of average intelligence is in itself a striking illustration of a wise and ancient proverb—"There are none so blind as those who won't see"; and at the same time it is a notable index of the status of the "antis" in general—"agin the gov'ment," whatever its complexion, dissatisfied with the actual order of events, with "things as they are."

Dr. Pfeiffer has been for many years emphatic in his denunciation of vaccination. He deemed it always an injury and never a benefit, but he denounced it especially because he considered compulsory vaccination a violation of the rights of the individual, however strikingly oblivious such "rights" may be of the undoubted rights of others, far more numerous, in their demand to be protected by the State from all preventable disease.

Dr. Pfeiffer, to his honor be it said, had the courage of his convictions on this subject, and in this respect at least he differed from the great majority of his cult. During a recent antivaccinational hearing before a committee of the Massachusetts Legislature he undoubtedly determined to prove that to a person in vigorous health, as he himself then was, smallpox is not a contagious disease. This fact he hoped to demonstrate and he chose the means best adapted certainly to make his expected demonstration publicly emphatic. To obtain permission from the Boston Board of Health to visit the numerous patients in the city's smallpox hospital on Gallop's Island was for him, as for other physicians, a comparatively easy matter, and Dr. Samuel H. Durgin, Chairman of the Board, showed at once his wisdom and his scientific foresight by allowing Dr. Pfeiffer to make this visit unvaccinated, although of course against the rules. Criticized for this exception in the light of the event, Dr. Durgin has ably defended himself on the one principle which is valid always and everywhere, the principle of Utilitarianism, of the greatest good to the greatest number. Rather than be vaccinated, Dr. Pfeiffer unquestionably would have stayed away, and an experiment of great practical value to the world would have been missed. But, to indicate an example of the questionable and often deceitful means in the employ of the antivaccinationists, let us rehearse the reasons given by the Doctor for desiring permission to make this visit, remembering that at the very time he was publicly urging the non-contagiousness of this disease, but with adequate evidence lacking. To the Chairman of the Board of Health he wrote:

"Referring to our conversation of recent date, and your request to my representative that I write you a letter asking for permission to visit the smallpox hospital at Gallop's Island, for the purpose of scientifically looking into the disease in all its various forms, and with close observation be able to get such facts, which will enable a physician to diagnose smallpox cases with as much certainty as possible, and also to get the facts in regard to the most successful treatment, I would say that I have already considerable experience, gathered in Europe, and am anxious to increase my knowledge."

On this representation the permission was readily granted, and on January 23d, well escorted by officials of the Board, he visited the Hospital. He thoroughly examined the institution, and went to the bedsides of many of the patients, and he took all the precautions which other visitors take to avoid infection (such as the

wearing of a close-bound gown and cap, washing the hands, beard, hair, etc., on leaving), save that of vaccination.

For the next ten days, more or less unknown to himself, he was watched and attended by physicians from the Board of Health in order that the public might be protected from infection from his anticipated disease. During these ten days he was at his office and in the antivaccination hearings as was his wont. But on February 3d, ten days after his visit to the Hospital, when the officer called at his professional office on Washington Street, Dr. Pfeiffer was not to be found, nor did he appear at the State House hearing. In answer to inquiries his assistant stated that he was "out of the State" and he volunteered the information that he had seen the Doctor in Philadelphia on the previous day; one of Dr. Pfeiffer's clerks said that she had received a letter from him on January 27th having on it the New York City postmark. The presumption certainly was to any one unfamiliar with antivaccinational methods that Dr. Pfeiffer had been and still was "out of the State." Naturally enough, the Board of Health suspected him to be much nearer home than New York and they even feared that he might be coming down with smallpox. Soon it became known that he had been seen about Charlestown, a part of Boston, but at his office it was denied. This denial was made by a woman clerk in Dr. Pfeiffer's office, yet within an hour thereafter this same woman, accompanied by a doctor, descended a back stairway to a narrow alley, and so reached a side street and a closed carriage that was there in waiting. This carriage, it was learned, conveyed its occupants to the office of a physician on Chambers Street; and there the positive information of the Health Board ended. This physician has since, it is understood, denied that he had any such patient. This was on Thursday, February 6th.

On the following Saturday, fifteen days after the visit to Gallop's Island, the Boston Board of Health received notice from a physician that Dr. Pfeiffer was ill at his home in Bedford with what was probably smallpox, and asking expert diagnosis, the case having been reported by Dr. Pfeiffer's son to the Selectmen of that town. Experts went at once to Bedford and found Dr. Pfeiffer suffering from a very bad attack of the disease. The patient's wife stated that he had arrived home on Thursday night in a carriage saying he thought he had the grip, but his son said that the Doctor had come home on Friday night directly from New York. The patient himself was too ill to make explanations and to set right this strange and unaccountable discrepancy as regards his movements.

This is an outline of this interesting series of events up to this date. Had Dr. Pfeiffer employed all his energy in advocating skilfully, instead of opposing, vaccination, he could have had influence only insignificant in comparison with that which his grave plight has had and will have upon the public. Nothing instructs the average man, especially in masses, so easily and so effectually as an object-lesson, and here is a demonstration arranged to instruct as a medical lecturer sets up an apparatus in the amphitheater. As a prominent Health Board official said to the writer, "This is a case in a hundred years for the cause of the prevention of smallpox." That the people of Boston have benefited from this lesson is already seen in the difference in the welcome accorded the 150 vaccinating physicians now at work in the West End of Boston. But the influence of the dangerous experiment made by Dr. Pfeiffer will, it is hoped, extend wherever its lesson is needed.

The latest news from the bedside of this for once useful antivaccinationist is that he may recover, although he is suffering from the confluent type of the disease. All hope that such will be the case. In the event that his wretched malady leaves him alive, we may perhaps expect from him one of three things—either that he will deny that his disease was smallpox, or that he will relinquish his public opposition to a world of demonstrated medical wisdom; or that he will admit that smallpox *is* contagious and that the public therefore needs protection from its awful ravages by any and every feasible means.

MEDICAL RECONCILIATION.

The recent appointment by the Medical Council of the New York State Medical Association of a committee to meet the committee of conference selected by the president of the Medical Society of the State of New York at its annual meeting in January forms the next step in the process of reconciliation of the two organizations which at present divide the allegiance of New York's regular physicians. There are now ten men, all of whom are known to have the best interests of the medical profession of this State at heart, on whose shoulders rests the responsibility for the bringing about of reconciliation.

We have already pointed out how much influence and dignity the medical men of this State lose by disunion and how eminently desirable from motives of professional and public welfare reunion would prove. There is no doubt that at least 95 per cent. of the profession in this State agree with these sentiments and we must conclude that we are on the eve of reconciliation.

The recent meeting in Albany showed how much interest the practitioners of this State generally take in the old Society that has so long been representative of their best interests. Here in New York City we realize how much the State Medical Association has gained in numbers and influence in recent years. Things have come to a pass where union is possible without loss of dignity or exercise of condescension on either side. We realize that there are many difficulties yet to be overcome. Most of these are purely personal and must be put aside to make way for professional welfare. Many technical difficulties can be raised if the members of the committees of conference approach the matter in merely formal manner. The committees must understand that the eyes not alone of the profession of this State, but of most of the medical men of the country, are watching the results of the conference and the methods that may be employed to further or hinder harmony. No member of these committees will be deemed worthy of such honors as may be in the gift of the medical profession itself if they now betray the interests of medical organization by insisting too much on merely personal or partisan grounds on inadequate reasons for keeping the Society and Association apart.

No better time for reunion than the present could be found. The annual meeting at Saratoga of the American Medical Association should find a united medical profession from New York State to greet the visitors from other States. If this can be accomplished, and there seems no good reason why it should not be, since all are agreed as to its desirability, we venture to say that this year's meeting of the National Association will be one of the most notable events in its history.

The return of the Medical Society of the State of New York to the fold from which it has been absent not entirely through its own fault would be the initiation beyond doubt of an era of even greater dignity and influence than before for the American Medical Association. Everything possible should be done to bring it about.

REMUNERATION IN THE PRESIDENT'S CASE.

We are led to believe that the question of remuneration for the surgical and medical attendants of our late President is at present pending in Congress. That it is a national duty to pay the bills in the case is clear. The President while engaged in his duties was stricken down by one who aimed not at him personally, but in some blind way at government through him. It would be eminently wrong therefore to think of the services rendered to the late President McKinley as in any way personal.

Our national reputation is on trial before the world as regards our appreciation of the life of our chief magistrate in hours of danger. On the action of Congress depends what other nations shall think of us in an affair of national importance.

Republics are said to be ungrateful and not without reason, since it is the almost invariable lesson of history that services rendered by citizens to republican governments were never properly rewarded. Many other things were said of republics that have been belied by our own great republic. It remains for us to see that the blot of republican ingratitude shall no longer hold good and our legislators are in the presence of an occasion for the exercise of such generosity as will stamp our governmental dealings with citizens with the ineffaceable mark of appropriateness.

There are many good reasons why the surgeons in charge of the late President's case should be compensated with the utmost liberality. The responsibility assumed was extremely weighty. The unfortunate termination of the case does not lessen the moral responsibility of the national government to provide due compensation for this. If the autopsy had revealed that any mistake had been made the professional reputations of those in immediate charge would probably have been ruined forever. The surgeons in attendance literally staked their future careers upon the exercise of their judgment and professional skill under the distressing and inconvenient circumstances in which they were placed. The surgeons in attendance on President Garfield were treated with scant courtesy and miserly consideration unbefitting a great nation. If it were not inconsonant with true patriotism great surgeons would have felt the necessity for refusing to have anything to do with cases of national importance thereafter. The old disgrace must be wiped out. The opportunity to do

so is in the hands of the committee of the national legislature that has in charge the question of compensation of the President's physicians. Let us hope that this great occasion will not be neglected.

HUMAN AND BOVINE TUBERCULOSIS.

In the midst of the excitement aroused by Koch's declaration last August as to the absolute distinction between these two types of disease, human and bovine tuberculosis, it was a little lost sight of that the medical world owed the first real scientific work on this subject to an American, Dr. Theobald Smith. Dr. Smith's paper in the discussion that was opened by Dr. Janeway at the first December meeting of the New York Academy of Medicine represents the contribution of an original worker in the bacteriology of the subject. We are glad to be able to present to our readers the full text of the papers of Dr. Smith and Dr. Janeway. They are illuminative, informing documents on an important and at the present moment very practically interesting subject.

Dr. Smith insists on the fact that what we need in the present difference of opinion is not more theorizing and asseveration, but careful observation and patient investigation. As our knowledge of bacteriology advances nothing becomes clearer than that we cannot argue from the susceptibility of one animal to a bacillus to the susceptibility of other animals, even though they may bear certain resemblances to the first kind. No *a priori* rules will guide us as to the animal species that are liable to be affected by any given bacillus. There is, for instance, a bacillus not unlike the bacillus of fowl cholera that produces a choleraic disease in geese. Surprisingly enough, however, it does not produce the symptoms of fowl cholera in fowls other than geese and it proves to be pathogenic for rabbits. There is a micro-organism that causes an epizootic among buffaloes yet fails to affect any ordinary cattle. The size of an animal has little or nothing to do with its specific immunity to certain bacilli. Bovine tubercle bacilli are very virulent for many kinds of animals. They even prove rapidly fatal to swine, yet they fail to affect mice.

With regard to bovine, human and avian tuberculosis, more experimental work is needed before conclusions of value can be reached. There is some evidence of the transfer of bovine bacilli to human beings. In certain cases bacilli having the characteristics of bovine tubercle bacilli have been isolated from human tissues. Curiously enough, one of the most suspicious cases of this kind was reported by an experimenter working under Prof. Koch's direction, though Koch himself in his discussion of the subject makes no mention of it. It seems clear, then, that the flooding of the human digestive tract with bovine tubercle bacilli, especially in delicate early life, may be a source of serious danger. Careful precautions should be taken against any such possibility. In the present state of uncertainty this is the only safe course despite Prof. Koch's almost positive assurance of absence of danger.

Dr. Smith is of the opinion that the only way in which the vexed question of bovine tubercle bacilli being pathogenic for man can be decided is to find bacilli having the positive characteristics of bovine tubercle bacilli in the lesions of human tuberculosis. Inoculation experiments have many uncertainties. This mode of entrance into the tissues does not seem to favor the growth of bacilli that have grown accustomed to the cellular environment of a different animal species. Some preparation other than the sudden introduction into the tissues seems necessary to ensure bacillary growth. Some preliminary modification in the introduced bacilli is needed to fit them for their new surroundings. The problem is one that lies at the very base of many as yet obscure biological principles, but the outlook for its solution is hopeful in the midst of the widespread interest that has been aroused.

In the meantime the warning note uttered by so acute and conservative a clinical observer as Dr. Jacobi at the same meeting must be dominant for medical harmony in practice. The dangers from inoculation with bovine tuberculosis are too serious, if true, to be neglected because their existence is doubted by the laboratory workers. The prevention of tuberculosis in cattle and the constant inspection of the sources of our cities' milk supply is no mere agricultural question, as has been stated, but must certainly be considered a very serious necessity for human sanitation. While we may not go so far as to be frightened by the English statistics of the frequent occurrence of primary intestinal tuberculosis, there seems no good reason to doubt that sometimes there is direct tuberculous inoculation through the digestive tract. It is much better to be sure than to be sorry and none of our present elaborate system of milk inspection, in so far as it is effective, should be relaxed in the slightest degree until we have more positive knowledge with regard

to the innocuousness of infected milk. In this matter our careful scientific observers here in America have furnished us with data that enable us to draw conclusions as to our own conditions without the need of consulting foreign opinions or statistics. Our only justifiable course is to follow the practical conclusions of our own trustworthy workers.

ECHOES AND NEWS.

NEW YORK.

Positions at Pathological Institute.—Civil-service examinations will be held in New York City, March 15, 1902, for the following positions in the reorganized Pathological Institute: Associate in chemistry ($1,800); associate in clinical psychiatry ($1,200); chief associate in neuropathology ($1,800). Dr. Meyer has appointed Dr. P. H. Levene at the head of the chemical department and Dr. Harlow Brooks as associate in bacteriology.

Consulting Ophthalmologist to City Hospital.—Dr. Joseph H. Andrews has been appointed consulting ophthalmologist to the City Hospital. Dr. Andrews has served on the staff for fifteen years, faithfully and well, and the new commissioner, Mr. Folks, shows his sense of the fitness of things in making this appointment.

Work of the Montefiore Home.—The Montefiore Home, which comprises a hospital for chronic invalids and a country sanitarium for consumptives, has just made public the work done during the seventeenth year of its existence. The two institutions have provided for 280 men and 143 women. Of these 339 were inmates of the homes at the end of the fiscal year. The number of pay patients during the year was fifteen. The whole number of patients treated during the year was 737. The officers of the society at present are Jacob H. Schiff, President; L. G. Bloomingdale, Treasurer, and Raphael Ettinger, Honorary Secretary.

Gov. Odell and the State Hospitals Bill.—According to the Evening Post, at the conclusion of last week's hearing at Albany on the State Hospitals Bill, Gov. Odell announced that he would sign it. "I have no desire," said he, "to break down any system. I believe this bill is right, and I am going to approve of it because I believe it is right. There is nothing for those interested in charitable work to fear from this bill, as it is for the betterment of the system of administering the hospitals." The Governor showed considerable feeling towards his critics, and had a sharp colloquy with George F. Canfield, President of the State Charities Aid Association, the principal speaker against the bill. He accused the organization with which Mr. Canfield is affiliated of having been responsible for stirring up the opposition to the measure, and said that there had been great extravagance and mismanagement under the present system. He proposed, under the bill, to get rid of certain persons who had been responsible for some of this extravagance, but had thus far been able to retain office.

Reconciliation in New York Medical Affairs.—The following is a copy of the resolution appointing the committee on conference: *Whereas*, The Medical Society of the State of New York, having appointed a committee to confer with a similar committee from the New York State Medical Association, with the view to a union of the two organizations, and notice of such creation of a committee having been officially given to our President, together with the request that a corresponding committee be appointed by us; *Therefore*, Be it resolved that this Council (the executive board of the Association) appoint for the purpose of the conference in question a committee of five, consisting of Dr. E. Eliot Harris as chairman, and Drs. William H. Biggam, Emil Mayer, Parker Syms, and Frederick Holme Wiggin, to which committee the President is added as a member *ex-officio*.

Alumni of Mt. Sinai Hospital.—The regular annual dinner and reunion of the Association of the Alumni of Mt. Sinai Hospital was held at the "Arena," 39 West 31st street, New York City, February 14, 1902, Dr. E. J. Ware presiding. Among those who delivered addresses were Mr. Isaac Wallach, the President of Mt. Sinai Hospital, Drs. Abraham Jacobi, Arpad G. Gerster, Emil Gruening, Alfred Meyer, B. Sachs and Mr. Louis Wiley, of the New York Times. The following officers were unanimously elected for the ensuing year: Samuel M. Brickner, M.D., President; Albert A. Berg, M.D., Vice-President; Charles Goodman, M.D., Secretary; Martin W. Ware, M.D., Treasurer.

Honor to Dr. Metcalfe.—The New York Sun had the following tribute to pay to Dr. Metcalfe in a recent issue: "John T. Metcalfe, who died at Thomasville in Georgia a week ago Thursday, was scarcely known by this generation, yet in his own he had been one of the most eminent of physicians. Born in 1818 in Natchez, he was graduated at West Point in 1838 and served in the army for two years, mostly in Florida, and then resigned to study medicine. His degree was gained at the University of Pennsylvania in 1843, and then two years in Edinburgh and Paris completed the preparation for his life's work. Not many men can step to the front at the outset of their career and for forty years hold their place against all comers; but Dr. Metcalfe did, and that, too, in spite of a frame at no time robust. As a general practitioner of medicine he wielded an influence in this community more widely felt by his contemporaries, lay and professional alike, than that exercised by any of his associates. As a clinical teacher he might be said to have had no rival, so that in the many years he gave to that absorbing work he left the imprint of his learning and of the surety of his insight on many of the later leaders in his calling throughout the country.

"Dr. Metcalfe's most noticeable characteristics of mind were probably his extraordinary quickness of perception, his readiness in analysis, his strong memory and his sound judgment. They made him the best clinical investigator of disease of his day, as well as the happiest in finding the remedy. He was the very personification of the complete physician. And with friends he was much more. Sydney Smith said no better things than many original with Dr. Metcalfe. His wit—it was always spontaneous—was a delight of which all were glad to partake. If any one could bring a dying man to smile, and that without irreverence or loss of dignity, Dr. Metcalfe was that one. His example remains to his profession, and to his friends the best thing the dead can leave the living—the memory of a most gentle, charming and well-filled life."

American Laryngological Society.—A meeting of the Eastern Section of the American Laryngological, Rhinological and Otological Society will be held at the New York Academy of Medicine, Saturday, March 1st. The following program has been arranged: Address of the Chairman, by H. Holbrook Curtis, New York; An Unusual Case of Nasopharyngeal Adenoids, by Carl E. Munger, Waterbury, Conn.; Unique Case of Postnasal Polypi in a Child, with Specimen, by Geo. L.

Richards, Fall River, Mass.; Report of Four Cases of Polypi Attached to Upper Wall of Maxillary Antrum, Protruding into Nose and Rhinopharynx, by Robert C. Myles, New York; Report of a Case of Temporosphenoidal Abscess, with Presentation of Patient, by James F. McKernon, New York; Peritonsillar Abscess, by Frederick C. Cobb, Boston; Two Cases of Hemorrhage, by W. H. Haskin, New York; Septum Operations under Cocaine and Nitrous Oxide Gas, by B. S. Booth, Troy, N. Y.; Acute Suppurative Otitis Media: Its Etiology, Symptoms and Treatment. Discussion by Wendell C. Phillips, Edward B. Dench, James F. McKernon, New York; The Removal of the Stapes for the Relief of Auditory Vertigo, by Eugene A. Crockett, Boston; Chorea of the Larynx—Report of a Case, by James F. McCaw, Watertown, N. Y.; The Treatment of Tonsillar Mycosis, by Chas. W. Richardson, Washington, D. C.; Epithelioma of the Auricle and Auditory Canal: Operation; Exhibition of Patient, by Thos. R. Pooley, New York; Rhinitis Rheumatica, by W. Freudenthal, New York; Chronic Hypertrophic Rhinitis; Its Treatment, by Z. L. Leonard, New York; Persisting Temperature after Mastoid Operations; Analysis of 100 Cases, by Thomas J. Harris, New York; Deviation of the Nasal Septum: Why Our Corrective Operations Often Fail, by Chevalier Jackson, Pittsburg, Pa.; Operative Treatment of Tracheal Stenosis, Following Intubation for Diphtheria; Exhibition of Three Cases, by Arthur B. Duel, New York; Report of a Case of Empyema of Antrum of Highmore, with Interesting Complications, by H. N. Hoople, Brooklyn; Extrinsic Nasal Neoplasms, by John C. Lester, Brooklyn; Empyema of the Frontal Sinus, by Conrad Berens, Philadelphia; General Consideration of Hyperplasia of the Lingual Tonsil, by Seymour Oppenheimer, New York. The profession are cordially invited to be present.

PHILADELPHIA.

The Philadelphia Neurological Society.—A stated meeting of the Philadelphia Neurological Society will be held on Tuesday, February 25, 1902, at 8.15 p.m. Dr. Adolf Meyer, Director of the Pathological Institute for the New York State Hospitals, will, by invitation, deliver an address entitled "Conditions for Psychiatric Research." Members of the profession are cordially invited to attend. After the address a reception will be tendered Dr. Meyer at the University Club.

Dr. Leidy Honored by French Government.—Dr. Joseph Leidy, Jr., has been honored by the French Government with the insignia of Officier D'Instruction Publique. This decoration was awarded for services rendered during the Paris Exposition of 1900, Dr. Leidy representing the United States upon the International Jury of Hygiene and also being a delegate to the Congress of Hygiene and Dermography.

House Quarantine Likely to be Ended.—The committee of five physicians recently appointed by the Director of Public Safety to consider methods of combating smallpox have recommended, provided certain precautions are taken, the abolition of house quarantine. Guards for maintaining quarantine are now costing the city about $20,000 monthly. The report of the committee is as follows: "As soon as the smallpox patient falls ill he should be isolated. While he is in the house strict quarantine should be enforced. Removal to the Municipal Hospital, however, is advised in all cases. After removal to this institution, prompt measures must be taken to disinfect the premises which he has occupied. Every occupant of the house in which the case has occurred should be vaccinated and if necessary, revaccinated, unless satisfactory evidence of recent successful vaccination, can be shown. When vaccination is refused by such occupants, quarantine should be enforced for a period of eighteen days. The premises should be visited daily by a medical inspector, acting under the instruction of the Board of Health." The Homeopathic County Medical Society opposes the abolition of quarantine.

The Relation Between Chickenpox and Smallpox.—At the Pediatric Society, February 11th, Dr. Jay F. Schamberg read a paper on this subject and reported a small epidemic of chickenpox at the Municipal Hospital. Evidence was given to show that the two diseases were entirely distinct and not gradations of the same affection, as stated by some of the older writers. The epidemic occurred in November, 1900, when 33 persons recovering from smallpox had an attack of chickenpox. The latter disease did not appear until the lesions of smallpox had crusted or disappeared, generally from the twentieth to the thirty-fifth day of the disease. There seemed to be no relation between the two diseases except the strong resemblance in some cases.

University Medical Laboratories to be Begun at Once.—The new medical laboratories of the University of Pennsylvania are soon to be started, although only half of the $600,000 to be expended in their construction and equipment has been raised. The building will be 340 by 245 feet in size and two stories in height. Besides two amphitheaters with a seating capacity of 400 each and smaller demonstration rooms and laboratories, the whole front portion of the building will be occupied by small rooms for special medical work and research. The rooms will be so arranged as to secure the greatest amount of northern exposure.

Physician the Victim of an Incompetent Jury.—After deliberating for nineteen hours the jury in the suit of Mrs. Nugent against Dr. H. M. Righter to recover $5,000 for the death of her six-year-old son brought in a verdict of $1,000 in favor of the plaintiff February 16th. The trial occupied nearly a week, the suit being brought by Mrs. Nugent against Dr. Righter on the ground that the boy died of impetigo contagiosa which resulted from a vaccination by the defendant who, it was alleged, used virus not hermetically sealed. It was further claimed that the physician deceived the plaintiff by telling her the boy had diphtheria. In spite of the defense proving that the impetigo did not develop until twenty-eight days after vaccination and being upheld in his diagnosis of diphtheria and its treatment with antitoxin by a consultant, the verdict as named was rendered. The case will be appealed. A physician who testified for the plaintiff that the method of vaccination used was not a proper one has so aroused the indignation of the profession that it is stated that he will be expelled from the County Medical Society.

Jefferson Hospital Plans Completed.—Final steps toward the building of a new hospital for the Jefferson Medical College have been taken and work will be begun in a few weeks. The hospital will front on Tenth Street and when completed the present building will be demolished to make room for a maternity hospital and nurses' home. The new hospital will be seven stories in height. The out-patient department on the Sansom Street side of the first floor will be separated from the general hospital by a solid wall. The general wards will be on the second, third, and fourth floors, and there will be two private operating-rooms on each floor. Sun parlors will communicate with each ward. On the fourth floor will be a gymnasium with appliances for Swedish movements and the treatment of deformities by exercise. On the fifth and sixth floors will be the private rooms, kitchens, etc. A roof garden

for convalescent patients will cover the entire main building. The J. M. Da Costa Clinical Laboratory will be incorporated with the building. The new hospital will have beds for 250 patients—more than double the number now accommodated in the old building.

CHICAGO.

Chicago Academy of Medicine.—At its annual meeting, February 14, 1902, Drs. W. L. Baum, W. A. Evans, J. G. Kiernan, H. N. Moyer, and E. S. Talbot were elected directors. Dr. W. L. Baum was elected president and Dr. J. G. Kiernan secretary, and the latter hereby becomes secretary and treasurer of the Academy.

Growth of Alexian Hospital.—A report showing the scope of work being done by the Alexian Brothers at their hospital has just been issued. The statistics for the year 1901 show a material increase in the number of patients as compared with the record of 1898, the year the hospital opened. During 1901 the number nursed was 2,709, exclusive of those who applied for treatment at the sanitarium. Of the 2,709 inmates during 1901, but 1,421 paid the full price of treatment; 381 paid a small portion of the cost and 907 were charity patients. City ambulances took 504 persons to the hospital during the year, practically all of whom had been injured in accidents. The hospital is still considerably in debt, and the Brothers in charge will work arduously during the year to secure a material reduction of the amount of indebtedness.

Illinois General Hospital for the Insane.—With the arrival and installation of a hundred inmates from the Illinois Central Hospital for the Insane at Jacksonville, the asylum for the incurably insane at Bartonville was formally opened for the reception of patients February 10th. From now on the State Commissioners of Public Charities will cause to be transferred from the State Insane Hospitals at Jacksonville, Elgin, Kankakee, Anna, and Watertown, with the consent and concurrence of the Superintendents and Trustees of these institutions, such number of incurable patients as the new institution can accommodate. The next installment of transfers will be made later, when 200 patients will be sent from Kankakee and Elgin, one hundred from each place. This institution was built for the care of insane persons for whom there is no hope of recovery. These were so numerous at the State hospitals for the insane that it was believed by the officials that their presence was a hindrance to the successful work on the curable patients. For that reason it was decided to separate them. The capacity of the new institution, while fitted with employees' quarters, domestic buildings, heating and electric plants and storage buildings sufficient to accommodate two thousand patients, is at present limited to about seven hundred, since the cottage and dormitory room will accommodate only this number. Until more ground is acquired the present facilities will not allow for the care of more than that number, and the next General Assembly is depended upon to see that provision is made for more cottages. Meantime, the structure commonly known as the employees' building will be utilized exclusively for the care of patients.

Smallpox.—Three-fourths of all the reported cases of smallpox in the United States are in the territory surrounding and tributary to Chicago and in a population of only about one-third the total population of the country. The data for this statement are found in the current number of United States Public Health Reports, in a tabulation of smallpox in the United States as reported to the Surgeon-General, U.S.M.H.S., December 28, 1901, to January 31, 1902. The cases so reported number 11,107, of which 8,147, or 73 per cent., are in Chicago territory. During the corresponding period last year the proportion was almost exactly reversed—30 per cent. in Chicago territory and 70 per cent. in the rest of the territory. Obviously, the Health Department began its campaign against smallpox none too soon, and the wisdom of its course in appealing to the railway companies as the interest most directly concerned, from a financial standpoint, and as the most effective working agency, is already demonstrated. They have taken hold of the work in a thoroughly business-like fashion, and it is not too much to expect that the epidemic will be practically under control within the next three weeks. There will be no occasion for insuring against smallpox, as is being done in England, if the principles of the vaccination creed be faithfully carried into effect. Great immunity of Chicago from the disease still continues. During the last week 28 suspect cases were examined by the medical inspectors, but only 4 were found to be genuine cases.

Amphitheater at Mercy Hospital Dedicated.—The new clinical amphitheater at Mercy Hospital, one of the finest in the West, was dedicated Wednesday evening, February 12th, in conjunction with a regular meeting of the Chicago Medical Society. Representatives of the Northwestern University Medical School took a leading part in the dedicatory exercises. Dr. Robert D. Shepard, who has been closely associated with the work of Mercy Hospital as well as that of Northwestern University, spoke of the history of the two institutions, telling how, though the University and the Hospital are controlled by different managements and have been for a number of years, they have coöperated in medical and surgical work. In the unavoidable absence of his father, Dr. Nathan Smith Davis, Sr., Dr. N. S. Davis, Jr., acted as a substitute for him. He said the Mercy Hospital was founded in 1849, there being no hospital in Chicago prior to that time. In order to found the hospital, Dr. N. S. Davis, Sr., delivered a course of public lectures in Chicago, by means of which a small sum of money was raised; twelve beds were purchased, and a free hospital was opened in an old building across Rush Street bridge on the North Side. The Sisters of Mercy took charge of the institution thus founded late in the following winter. From those few beds and from the small assemblage of medical men and of patients has grown the present institution, situated now on the corner of Twenty-sixth Street and Calumet Avenue.

Medical Education.—The address of the evening was delivered by Dr. John B. Deaver of Philadelphia, who selected for his subject "Medical Education." The course of study in a medical school should be well balanced and proportionate, and this aim should be kept in mind. The time given is too short to fit a man to become a specialist, but is only sufficient for a groundwork that will permit him to follow his bent, either in post-graduate schools, or in that larger and greater school of personal experience—the daily routine of practice. Even a rapid review of the curricula of the various medical schools will show that in most this balance is not maintained. Some devote too much time to laboratory methods, some to surgery and anatomy, and in others the preference is given to internal medicine. This unevenness is usually due to the domination of one branch of the faculty over the others, and suggests the remedy of each department asking for only the necessary time for the ground-work principles of their branch, and not that necessary for the instruction of future specialists. A college course should be practical. For instance, in some medical schools nearly as much time is given to instruction in chemistry as is given to anatomy, and yet the graduate is hardly able to examine a specimen of urine for albumin with certainty and despatch. Clinical and didactic teaching each have their place. Were it possible, the ideal

method would be a presentation clinically, in a logical order, of all the varieties and stages of disease, but this is manifestly impossible, and didactic teaching must always fill up the gaps left by clinical teaching and be useful in reducing the lessons learned clinically to a systematic and rememberable classification. Thus both kinds of teaching have their place; but there is little doubt that a lesson learned at the bedside or operating-table is more real and applicable to the student than a lesson learned from a didactic lecture. A spirit of commercialism is one of the greatest enemies of a medical school. A large production at a cheap rate may be a good enough aim for a business house, but this spirit is fatal to a medical school. Too many schools seem to take pride in their large enrolment of students, forgetting that at the same time the teachers and clinical material are entirely inadequate for the proper instruction of so large a body of men. Nothing is of greater importance to the body politic than the proper instruction of those who are to have the care of the health of the community on their shoulders. There is not, and never has been, a higher calling than that of the teacher, and a teacher of medicine is one of the highest in this calling. The dignity of the calling is seriously debased by its being occupied by men who, in order to obtain even a respectable livelihood, must make their high position subservient to their practice. Dr. Deaver then considered those principles that are the rock upon which the enduring edifice of medical education must be reared. They are three—anatomy, physiology and pathology. With a thorough practical working knowledge of this triumvirate, all knowledge of medicine is possible of attainment. Where is the surgeon who does not, each day of his life, call to his aid his knowledge of anatomy and pathology, or the physician who is not constantly in need of a knowledge of physiology and pathology in making the simplest diagnosis or in performing the simplest operation of surgery?

Tribute to Dr. N. S. Davis.—Among the pioneers of those who have done most for the advancement of medical education stands the name of one of the members of the Chicago profession. He referred to Dr. N. S. Davis, who as long ago as 1839 began a series of articles asking for improvement in medical schools. Almost the first in the field, his conscientious and able efforts were finally crystallized into the American Medical Association. Thus it is seen from its very inception the primary object of this great bond of unity between the most widely separated members of the American profession was the advancement of medical education. That its purpose has been productive of valuable results there can be no question, and Dr. Davis has been able to see results worthy of the greatest congratulation in the advancement of the medical schools of the country.

Peroration.—Kingsley in "Westward Ho" drew attention to the fact that the tide of immigration was ever toward the west, and it would seem that medicine is following in the track of the westward tendency in the United States. It was not many years ago when the East held the palm of medical education; but today we of the East must bow to the progress of our Western brothers, whose achievements speak so loudly and who, with no uncertain voice or faltering hand, have taken a place in the front ranks of medical attainment, and have raised the banner of Esculapius to the virgin winds of the great West.

A Case of Carcinoma of the Head of the Pancreas.—At a meeting of the Chicago Pathological Society, held February 10th, Dr. Frank Billings presented this case. The patient was a man, fifty-three years of age, a German, a leather worker by trade, who was admitted to the Presbyterian Hospital on October 21, 1901. His family history was negative and he had not been sick until the present illness began five months before his admission. He then noticed slight dizziness and weakness on rising in the morning and in a few days his physician told him that his eyes were yellow. A general jaundice followed, gradually increasing until his whole body was intensely discolored. The jaundice was associated with a sleepy feeling and with much itching of the skin. He lost gradually in weight and in five months before his admission weighed 33 pounds less than at the beginning of his illness. His bowels were usually loose with large stools. He had no pain, chills, fever or sweats at any time. There was no nausea or vomiting. Examination on admission showed an emaciated jaundiced patient with sclerosed arteries. Negative findings in lungs and heart; liver dulness beginning at the fifth interspace in the mammary line and extending three finger-breadths below the costal border. The left lobe of the liver appeared larger than the right and was nodular and somewhat tender to the touch. The abdominal muscles were so rigid that it was impossible to tell the condition of the gall-bladder. The spleen was not palpable. The urine contained a great deal of bile pigment but no other abnormal ingredient at any time. At no time was sugar found. While in the hospital the patient usually had a slow full pulse, subnormal or normal temperature and normal respirations. His appetite was poor, he was sleepy and drowsy much of the time and indifferent as to the final outcome of his disease. Blood examination showed 2,640,000 reds; 8,700 whites; and 58 per cent. of hemoglobin. The blood-corpuscles and plasmodia were yellow-stained. The time of coagulation of the blood was twelve minutes (Wright's method). The bowels moved two or three times each day and the total fecal excretion was large for each twenty-four hours. During the stay in the hospital the patient had no nausea, vomiting, pains, chills, fever or sweat. He died December 20, 1901. The autopsy made by Professor Hektoen, December 21st, revealed carcinoma of the head of the pancreas, biliary obstruction, dilatation of the gall-bladder and hepatic ducts, with general jaundice, biliary cirrhosis, cystic dilatation of pancreatic ducts, secondary carcinoma of the liver and of the peripancreatic and inguinal glands, chronic gastro-enteritis, chronic ulcerative colitis, chronic nephritis, chronic pulmonary tuberculosis, adhesive pleuritis, sclerosis of the aorta, epithelioma of esophagus, and Meckel's diverticulum.

CANADA.

Obituary.—Dr. J. A. Fife of Peterboro, Ont., died on the morning of February 12th. Deceased had been a practitioner of that town for many years and was a native of the county, having been born there in 1838. He was graduated from the Toronto School of Medicine and from Victoria University, Toronto, after which he took a post-graduate course at Bellevue, New York. During the American Civil War he served for two years in the Northern navy.

Value of Vaccination Proven.—Since May, 1901, there have been in the Montreal Civic Hospital two hundred and forty cases of smallpox, not one of these patients having been vaccinated before being brought to the hospital. The efficacy of vaccination as a preventive of smallpox is effectively illustrated by the fact that for months a staff of doctors and nurses, eighteen in number, have been in almost hourly attendance upon these patients, but not one of them has contracted the disease.

Medical Inspection of Schools in Montreal.—At the last regular meeting of the Medico-Chirurgical Society of Montreal the question of the medical inspection of schools was under discussion. Papers were con-

tributed on the subject by Dr. Ruttan, Dr. Tait McKenzie, Director of Physical Training, McGill University, and Dr. Charles H. Church. Dr. Ruttan's paper dealt generally with the whole matter; Dr. McKenzie's paper referred particularly to the deformities among school children resulting from defective seats and desks, while Dr. Church's paper dealt with observations taken from the schools of Montreal, particularly referring to sanitary conditions. There was a general discussion following the reading of these papers, and it was decided to take up at a future date the whole question of the medical inspection of schools in that city.

Increase of Insanity in Ontario.—According to the report of the inspector of lunatic asylums for the Province of Ontario, there were in these institutions on September 30, 1901, 4,604 patients as compared with 3,318 twelve years ago. The population for the different asylums in the Province is set down as follows: Toronto, 724; London, 1,034; Kingston, 509; Hamilton, 1,029; Mimico, 605; Brockville, 613. A comparison of the relative increase of insanity with the population shows that while the provincial population has increased from 1,396,091 in 1861 to 2,182,942 in 1901, or 56 per cent., the number of insane and idiots, officially known, has increased in those forty years from 1,631 to 5,880, or 260 per cent. The ratio forty years ago was one to 856; it is now one to 371. Of course, there is a great change in public sentiment within that time with regard to placing patients in asylums for treatment.

Prohibition in Ontario.—On October 14, 1902, the people of Ontario will have the chance of saying whether prohibition of the liquor traffic is to obtain in that Province. "The Liquor Act, 1902" is now before the Legislature; and it provides for a referendum on the above date. The question is of interest to the profession of medicine as certain clauses in the bill show. If carried at the polls, prohibition is to come into force on May 1, 1904. After that time the dispensation of all fermented, spirituous and malt liquors, and all drinkable liquors which are intoxicating, will be in the hands of the wholesale and retail licensed drug-houses and shops, and with the doctors. Retail druggists will only be permitted to sell "liquor" to private individuals under *bona-fide* doctors' prescriptions; and the quantity allowed to be kept by any retail druggist or physician will be not more than five gallons. A sick person will be allowed to keep liquor in his room if prescribed for him, but he must not let any other person drink it there. Hospitals will be permitted to keep it, but only for the use of patients and that on a physician's prescription.

New Medical Building for Toronto.—A deputation from the Medical Faculty of Toronto University waited on the Ontario Government during the past week with the object of securing Government aid to the extent of $50,000 for the purpose of erecting a new building for the Medical Department. The estimated cost of this new building, which is to be known as the physiological building, is $125,000; and it is proposed that part of it will be used by the Arts Department of the University. On this account the Medical Faculty thinks that the Government should place the above sum in the estimates, when they will undertake to finance the balance, $75,000. Dr. Reeve, Dean of the Medical Faculty, headed the deputation, and presented a by-law passed by the Trustees of the University authorizing the construction of the new building, which he asked the Government to sanction. The Government was not very definite in its promises in the matter, the Minister of Education, the Hon. Mr. Harcourt, throwing out the suggestion that the Medical Faculty undertake to raise the entire sum, and then charge the Arts Faculty $2,000 per annum, the interest on $50,000.

Toronto Clinical Society.—At the regular monthly meeting of the Toronto Clinical Society, held on the evening of February 5th, Dr. E. E. King showed two patients who had had fracture of the spine. Three interesting cases of capsular nephrotomy were also reported, the first by Drs. W. P. Caven and George A. Peters, the other two by Dr. Alexander Primrose. Dr. Caven's case was a man, aged thirty-four years, who in the summer of 1899 was first told that he had Bright's disease. His kidneys were said to be sound in 1892, as he was passed at that time for life insurance. When he came under the observation of Dr. Caven he was passing from 60 to 80 ounces of urine in the twenty-four hours, with three to seven grams to the liter of albumin. Hyaline, granular and fatty casts were also present in great abundance; urea, from 1½ to 2 per cent. On January 3d of the present year he was placed under chloroform and Dr. Peters performed encapsulation of both kidneys at one sitting. Before the operation there had been a gradually-increasing number of casts in the urine, but there was none found in the following twenty-four hours. There was no material change in the albumin or in the quantity of urine passed or in the amount of urea. The patient was very ill for some days after the operation, but his general health soon began to improve. Dr. Caven then referred to the paper of Dr. Edebohls on the subject. Dr. Primrose stated that the first case he described was performed before Dr. Edebohls' paper had been published. His first operation was performed on the right kidney and the second on the left. The first was reported at considerable length, being illustrated by a carefully-prepared chart and by two photographs of the boy, who was ten years of age, one taken before and the other after the operation. For six months the boy had general anasarca and ascites. Paracentesis abdominis had been performed seventeen times. Albumin was present in the urine—1.6 per cent. The urine increased from twenty to forty ounces after the operation, and the albumin diminished to .03 per cent. Later Dr. Primrose cut down upon the left kidney and removed entirely the kidney capsule. At the first incision he followed Harrison's suggestion, but at the second he followed that of Edebohls and brought the kidney out of the wound. The child was critically ill for some days subsequently, but gradually recovered and the renal symptoms underwent remarkable recrudescence. The general edema disappeared. A very animated and extended discussion followed the reporting of these cases in which it appeared that the consensus of opinion was that Dr. Edebohls had not given to Mr. Harrison due credit for having performed the first operation, even though it had been performed on a case of acute disease.

GENERAL.

Atlantic County Medical Society.—At a meeting of the Atlantic County Medical Society, held February 5th, the following officers were elected: President, William Edgar Darnall; Vice-President, T. Senseman; Secretary and Treasurer, Edward Guion; Reporter, A. B. Shimer.

Cincinnati Obstetrical Society.—At a recent meeting of the Cincinnati Obstetrical Society the following officers were elected: President, Julia W. Carpenter; Vice-President, Wm. Gillespie; Secretary, Magnus Tate; Recording Secretary, E. S. McKee; Treasurer, C. D. Palmer.

American Laryngological, Rhinological and Otological Society.—The eighth annual meeting of the American Laryngological, Rhinological and Otological

Society will be held in Washington, D. C., June 2, 3, 4, 1902.

Scarlet-Fever Serum.—Prof. Leyden announces that he has perfected a new serum for the prevention and cure of scarlet fever. It is said to be derived from the blood of patients infected with the disease. A number of tests made in a Berlin hospital have been successful.

Virchow Hospital.—It is proposed by the municipal authorities of Berlin to erect a hospital to be dedicated to Virchow. It will accommodate 1,700 patients.

Hospital Gift for Greenwich.—Robert M. Bruce is to provide Greenwich, Conn., with an isolation hospital for the safe treatment of contagious diseases.

Gift to Johns Hopkins.—It was learned last week that 176 acres of land in the northern suburbs of Baltimore have been unconditionally donated as a new site for the Johns Hopkins University. Arrangements have been practically completed for the transfer of the land on February 22d, the date of the jubilee celebration of the University.

Battle Creek Sanitarium Fire.—The Kellogg Sanitarium was entirely destroyed by fire early February 18th. Four hundred patients, who were in the hospital and the main building, were taken out before the flames reached them. But two accidents occurred during the removal of the patients. One woman and a girl, names unknown, became frightened and jumped from the third-story windows. Both broke their legs. The origin of the fire is unknown. The main building was 312x100 feet and six stories high. The loss will amount to at least $300,000. As soon as the fire was discovered watchmen ran through the corridors arousing the sleeping patients on each of the six floors. Many of them were unable to help themselves, and were carried to places of safety by the nurses. The corridors filled with smoke very rapidly, and about half of the inmates of the building were forced to come down the fire escapes. The sanitarium stood on a hill, and the water pressure was low, therefore the water supply was insufficient. The managers of the sanitarium are positive that no lives were lost, as each room was visited three times by a nurse before the building was abandoned. The buildings will be rebuilt immediately.

Obituary.—Dr. John L. Million, of Springfield, Ohio, died last week from pneumonia. He was seventy-five years old. He was a surgeon of General John A. Logan's regiment during the Civil War, for thirty years was chief medical examiner of the Ancient Order of United Workmen and long a pension examiner.

Dr. W. A. Dudley, one of the oldest physicians in Petersburg, Va., died last week of pneumonia, aged seventy years. He had practised medicine there for fifty years. During the gold fever in California he and his mother drove from Virginia to that State.

Dr. Thomas Neall Penrose, medical director, U. S. N., retired, died Thursday, Feb. 13th, at the Naval Hospital in Philadelphia from heart and kidney trouble. He was retired in 1897.

CORRESPONDENCE.

CURES EXTRAORDINARY.

To the Editor of the Medical News:

Dear Sir: Doubtless you are ever ready to chronicle new and wonderful strides in the healing art. With that belief, I respectfully submit the following:

My attention was recently attracted by the advertisement of Prof. Thos. F. Adkins, of Rochester, N. Y., who claims to cure the lame, the halt and the blind by means of his newly invented science, which consists of three parts mental powers and one part drugs (payable in advance). No disease or injury is of too complicated a character or of too long standing to baffle his seemingly supernatural skill.

Having worn a full-length artificial limb for several years, I was naturally led to hope by the professor's past achievements that it would be a very simple matter for him, by means of his highly developed mental endowments, to start in motion the healing vibrations which would change my patented limb into one of flesh and blood.

Accordingly, I wrote him in substance the chronic nature of my complaint; that my limb was devoid of feeling except for an apparent tingling in the toes occasionally; that I had practically no control over the knee-joint, and that, while approximately of the same length as the other, it did not appear so well developed, etc. By some inadvertence, I failed to state in so many words that it *was* a wooden leg, but doubtless such a slight omission from the symptoms would have no influence on the very clever diagnosis with which I was favored and which is enclosed herewith.

Truly, what a blessed era has been attained when one's physical or mental troubles will disappear by simply hiring another to think of them!

Should my case progress favorably, I shall take pleasure in reporting the same.

C. A. Sargent.

240 W. 34th Street, New York.

January 24, 1902.

"NEW YORK INSTITUTE OF PHYSICIANS AND SURGEONS AND THE THOMAS F. ADKIN SANATORIUM.

Rochester, N. Y., January 11, 1902.

"C. Sargent,
"N. Y. City.

"Dear Friend:

"Your request for free diagnosis came duly to hand. I have given your case my careful consideration, also consulted with my specialists relative to it and it is our combined opinion that you are suffering from uric acid diathesis with rheumatic manifestations, traumatic injury to limb causing partial paralysis.

"These troubles, while not yielding to the ordinary forms of treatment, magnetic, mental or medicinal, respond promptly to Vitaopathy. I have treated many cases *exactly like yours.*

"This method is original with me, being the result of years of study and experience. It is certain in its effects and never fails to bring about immediate and satisfactory results. My staff of specialists have spent years in treating such cases as yours in the ordinary practice of medicine. They are now devoting their entire time to the application of Vitaopathy to such cases, and the results are truly marvelous.

"If you allow me to take up the treatment of your case, I will do so with every confidence of perfecting a *permanent cure. I have hundreds of similar cases* under treatment, all testifying to the marvelous benefits received. As a reasonable person, you know that with the experience gained in treating so many similar cases, it is natural for me to understand such better than the ordinary physician who, perhaps, has only a few cases each year. 'Practice makes perfect' and it applies to the treatment of diseases as well as any other line. The more we practise the more we learn and the larger percentage of cures we make. I have the advantage of treating tens of thousands annually, while the ordinary physician treats but a few hundred. Remember that my treatment is especially prepared for each individual case. If you went to specialists, such as I have in my employ, they would charge you from $10 to $20

for an examination alone. I give you the attention of these specialists free. They have made a life study of certain diseases which their specialty covers, and if you place your case in my hands, it will have the very best attention that recognized specialists can give it. They will study your case continually and offer suggestions which will aid the treatment in curing you in the shortest possible space of time.

"The fact that my treatment is the only guaranteed treatment before the public ought to convince you of its merits. If you order a month's treatment and are not cured or materially benefited within two weeks' time, according to the terms mentioned in the enclosed guaranty contract, I will immediately refund your money. Now, this is certainly fair.

"For financial responsibility, honesty and integrity, I refer you to the Flour City National Bank of this city. For an immediate reference relative to the treatment, I invite you to write to Professor Geo. W. Savage, Warren, Pa., also to John C. Nelson, Dayton, Tenn. Both of these gentlemen have recently been cured by the Vitaopathic treatment. I shall be pleased to furnish other references if you so desire.

"At the low rate I charge, you cannot afford to be without this treatment—without all the expert attention I give you. If the druggists in your city were able to fill the prescriptions which I will have filled for you at my laboratory, their price for the remedies alone would be more than I ask for the entire treatment. The cost of a month's treatment is $5.00. Is there a physician in your city who could afford to treat you at this rate, giving you treatments twice a day as I do? Certainly there is not, and I am enabled to do this only because I treat so many cases that I can keep my specialists profitably employed all the time.

"A report of your case has been placed on file, so that upon receipt of your order there will be no delay in beginning treatment.

"You cannot afford to miss this opportunity. Remember that I have cured hundreds of cases that have been regarded as hopeless—cured them after all other methods had failed. Whether you take my treatment or not, I should like to hear from you. I will be glad to correspond with you relative to your case. I have the interest of humanity at heart aside from any financial consideration.

"If you will order a month's treatment within fifteen days from the date of this letter, I will give you my new course of instruction in Magnetic Healing absolutely free. The regular price of this course is $3.00. In order to introduce it in your community I have decided to give it to you free of charge. All I ask in return is that you recommend it to your friends whom you think might be interested. It is the best course in magnetic healing on the market. I guarantee this. I am sure you will be greatly pleased with it. I should like to hear from you by return mail so that I may know you have received this communication.

"Most cordially yours,

"INSTITUTE OF PHYSICIANS AND SURGEONS,

"THOS. F. ADKIN,

"President.

"P.S. I am sending you, under separate cover, my free book and circulars which I should like to have you read with great care, also fill out the symptom blank that you will receive with my circulars and return it to me with your order so that I may give your case a more thorough diagnosis.

"In replying, kindly use the enclosed envelope and your communication will receive prompt personal attention."

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

LUMBAR PUNCTURE AND FRACTURE OF THE SKULL—DIAGNOSTIC DIFFICULTIES IN INJURY TO THE SPINAL CORD—DUODENOSTOMY—INFECTIOUS ENDOCARDITIS—SUICIDAL MANIA DURING TYPHOID FEVER—MALTOSE IN THE LIVER AFTER DEATH—AMYLOLYTIC FERMENT IN THE BLOOD OF HEALTHY CHILDREN—ANTITUBERCULOUS SERUM—TRANSMISSION OF HUMAN TUBERCULOSIS TO ANIMALS—INOCULATION OF WHITE RATS WITH HUMAN CANCER—ACUTE TETANUS CURED BY CARBOLIC ACID—EXPERIMENTAL MENINGITIS.

DURING December the French Societies were active. Numerous interesting subjects were discussed, the following being the most important:

REYNIER at the Surgical Society, December 11, 1901, stated that he has recently had a case in which lumbar puncture was used for the diagnosis of fracture of the skull. The man was brought to the hospital in a deep degree of coma, with a paralysis of the left side. It was difficult to determine between a diagnosis of fracture of the skull and a simple hemorrhage into the brain, which would have made it a medical case. On the day after admission a lumbar puncture was made that resulted in the withdrawal of bloody fluid. This established the former diagnosis. At the operation of opening the skull a fracture of the parietal bone was found, with depression of the fragments, tearing of the dura mater and lacerations of the frontal and parietal convolutions of the brain. Thirty-six hours after the operation the patient died. The utility of lumbar puncture in these cases is still an open question, because there are instances in which withdrawal of the fluid by it has been of good effect and other instances in which no result whatever has followed.

TERRIER stated that the paper which Walther presented at the preceding meeting on a case of complete division of the spinal cord had induced him to explain to the Society the difficulties concerning the proper appreciation of symptoms proceeding from injuries to the spinal cord. His illustrations were drawn from facts collected by him during experiments on the horse. Frequently before the dura mater had been cut there appeared a light form of paraplegia. Later in another series of experiments on the dog of a similar character under the direction of Professor Longet, during which every effort was taken to avoid injuring the spinal cord itself, in removing the spinous processes it was found that paraplegia appeared without even so much as touching the spinal cord itself.

HARTMANN detailed the history of a woman who, after drinking a quantity of caustic liquid, showed signs of stricture of the esophagus which prevented all feeding by the mouth. At the operation he found the stomach so much retracted by scar tissue that it was impossible to perform a gastro-enterostomy or a gastrostomy. In order to assure the proper nourishment of the patient he was compelled to open the duodenum. This duodenostomy had immediate satisfactory results, but unfortunately the patient thought that she had the power to feed herself again by the mouth and made the attempt. The result was that she died in a few days, with purulent vomiting of gastric origin.

CLAUDE, at the Medical Society of the Hospitals, December 13, 1901, described two cases of infectious endocarditis, both latent, one with a subacute progress and the other with a chronic progress. The first case involved a man thirty-six years old for eight days afflicted with intense dyspnea with cyanosis of the extremities, albuminuria and high fever at the time of his admission. Over the chest were heard the signs of universal bronchitis with numerous loud râles.

There were, however, no murmurs at any of the valves of the heart, as apparently the sounds were hidden entirely by the signs of the bronchitis. Twenty-four hours later the man died in coma. At the autopsy there were found abundant wide-spread vegetations. Over the sigmoid valves of the aorta was a fibrinous exudate covered with small ulcers. In these deposits a large number of cocci were found on bacteriological examination. These were also abundant throughout the blood and at the sites of small hemorrhagic spots surrounded by infiltrations of embryonal cells, frequent in the liver and spleen. The man had, therefore, suffered from a septic endocarditis with ulcers and vegetations in the aorta. These have been a point of departure for a large number of microscopical emboli in the principal viscera. The second case was that of a woman thirty-four years old, received at the hospital in a state of prostration and advanced cachexia. Eight months previous she had had an attack of rheumatism in many of the joints of the body, in consequence of which she had become slowly and progressively invalidated. During her stay in the hospital this woman had not been able to take much nourishment, complained of pains in the abdomen and had constant diarrhea, with from time to time bleeding from the bowels and vomiting of bile. She gradually wasted away and died without having had fever while in the hospital. Her heart showed the presence of a diastolic murmur at the base, which was ascribed to an old insufficiency of the aorta. At the autopsy there were found tuberculous ulcerations over most of the surface of the intestines and throughout the lungs. The heart showed over the valves of the aorta scattered vegetations covered with fibrin. In one of the vegetations there was a small abscess containing a large number of streptococci, which did not, however, possess much virulence. The liver, spleen and both kidneys showed on microscopical examination the lesions of toxic degeneration most marked in the liver and kidneys. The diagnosis here appears to have been a chronic septic endocarditis which ended life by causing a toxemia.

Souques read a communication in the name of Ribierre and himself concerning a young woman who had attempted suicide on the sixteenth day of typhoid fever by jumping out of a second-story window. The woman had been afflicted for forty-eight hours previously with a dread lest she be cut into small pieces and disemboweled while alive, because for several days previously she had not been able to control her urine. The authors stated this fact as a peculiar one for the delirium of typhoid fever and to indicate its possibilities. Even in this disease, it appears that fixed ideas with hallucinations are possible which give rise to impulse to sucide. It is therefore wise to watch with greater care all typhoid-fever patients who become delirious.

R. Lapine and Boulud (Lyons) at the Society of Biology, December 14, 1901, desired to state that in addition to glucose a small quantity of maltose can be found in the liver after death. They have been able to show the existence of this form of sugar in the livers of dogs very frequently, although they were nourished entirely with meat. The livers were left several hours at the temperature of their laboratory and then they were treated as follows: By means of ether maltosazone was isolated from glucosazone. Then, after hydrolyzation of the extract of the liver, examination with the polariscope showed that the deviation to the right had been decreased while the power of reduction had been increased. They have also been able to observe the presence of maltose in the blood of dogs the livers of which contained it after death.

Nobecourt and Sevin said that in children less than two years old the amylolytic power of the blood serum is so great that one c.c. of serum always produces when mixed with starch in twenty-four hours at a temperature of 37° a quantity of glucose which varies between 0.005 and 0.0199 gram. Before the end of the second month of the child's life this amylolytic power of the blood is very feeble or absent. At whatever age it may be strong, it never seems to exceed the strength of producing more than 0.0299 gram. In children of greater age and in youths the lowest degree of amylolytic power is after all high, and the quantity of glucose produced is comprised between 0.02 and 0.0299 gram.

Arloing (Lyons) has been experimenting with a peculiar action of antituberculous serum which favors infection by the bacillus of tuberculosis attenuated under new conditions. If, into the veins of the rabbit, a mixture is injected made up of a variable amount of antituberculous serum and hemogeneous fluid-cultures of the bacillus of tuberculosis, there always takes place an exaggeration of the lesions of the disease in the organs of the abdomen and chest and their coverings. From these researches it seems likely that although administered by the veins and at the same time with an attenuated culture, the antituberculous serum has no power to arrest the disease; on the contrary it seems almost to favor it. Moreover, if serum is injected repeatedly in the tissue around the point of inoculation and sometimes in advance of the latter, it does not always afford any resistance by the animal to an intravenous injection of the culture of the tubercle bacillus.

S. Arloing (Lyons), at the Academy of Medicine, December 24, 1901, related the results of three series of experiments concerning the inoculation of animals with human tuberculosis. The bacilli were taken from various sources, such as the sputum, fluid from pleurisies and the like. The inoculation was intravenous and carried out upon kine, sheep and goats. The lesions found in all of these animals were chiefly in the form of granulations, confluent or discrete, in the lungs, liver, spleen, nervous ganglia and kidneys. As a rule they were distinguished by a low-grade cascation. Similar to these experimental results were those already obtained previously, made by the same author and tending to show that human tuberculosis can be transmitted to animals. In this first series there were twenty-three animals inoculated. If such authors as Koch and Schütz have failed in their inoculations, Arloing claims that it was because they used cultures of feeble bacilli on the one hand, and that the doses of whatever cultures were used were really too small. Arguing from his own results this author believes that he is entitled to draw the following conclusions: (1) The virulence of the tubercle bacillus is a variable quantity and capable of adapting itself to certain organisms. It seems, therefore, certain that the human bacillus can certainly attack and grow within certain animals with an activity no less marked than that of the bovine bacillus. (2) One may produce in cultures pure human bacilli which are capable of infecting the kine, the sheep and the goat. (3) Since it is possible to find such a result, it is not necessary to claim a distinct kind of tuberculosis for either. (4) The unity between the tuberculosis of man and of animals due to the bacilli of Koch is indisputable. (5) Koch and Schütz are not justified after their experiments in claiming an absolute distinction between human tuberculosis and animal tuberculosis. (6) It is therefore necessary to continue to carry out all the precautions concerning infected meat that have hitherto been the rule.

Mayet, at the Academy of Sciences, December 9, 1901, read a contribution in which he set forth results

of experiments for the proof of the transmissibility of human cancer to white rats. These confirm the previous researches made by him and read before the Academy almost eight years ago (1893). In three cases Mayet has seen appear after repeated injections of an aqueous maceration of cancer without filtration small nodules in the kidneys of epitheliomatous type. In three other animals in the same organs he found cavities which were evidently the production of new growth. The introduction of cancerous tissue into the peritoneal cavity had in two animals the effect of producing small nodes in the liver and kidneys; in two other rats the liver was more actively attacked, showing multiple small areas of neoplasm and even presenting a large mass of neoplasm 2 c.m. by 2.8 c.m. in diameter. Three rats which had received a filtered maceration of sarcoma showed a neoplasm of the liver identical to the preceding on gross examination. Unfortunately no microscopical examination was made. In a third case the introduction of cancerous matter into the peritoneal cavity produced on the digestive tract, especially the stomach and small intestines, about twenty small tumors the size of a pea. His total experiments were the following: Positive results in five cases, doubtful results in seven cases, and negative results in forty-two cases.

ENRIQUEZ, at the Medical Societies of the Hospitals, December 20, 1901, reported a case of tetanus cured by injections of carbolic acid carried out by Bauer and himself. The woman had received an injury of the index finger followed by universal tetanus of rapid onset and progress, with symptoms referable to the medulla oblongata, namely, disassociation of temperature and pulse, attacks of dyspnea, vomiting, etc. During the first four days of the disease she was treated without results with chloral hydrate and injections of antitetanic serum; on the next two days injections of a solution of carbolic acid were used, 4 c.c. the fifth day and 6 c.c. the sixth day. Then without any remission having become apparent, the treatment was changed to the following: Each day 150 to 200 grams of blood were withdrawn, followed by the infection of 200 grams of artificial serum to which were added 3 c.c. of a 2-per-cent. solution of carbolic acid. At the end of two days of such treatment the convulsions had almost disappeared. The blood-letting was discontinued and only the injections of carbolic acid and blood-serum continued. To-day the cure is complete. This observation appears to prove that notwithstanding the unfavorable results obtained in experiments by Courmant, Doyon and Josias, it is rational to employ injections of carbolic acid in all cases of serious tetanus which threaten to end fatally in a short time.

DELILLE, at the Society of Biology, December 21, 1901, reported that he has produced plastic spinal meningitis experimentally by sclerosing poison by the bacillus of tuberculosis. The inoculation was made upon dogs through a lumbar puncture with a definite quantity of this poison (*i.e.*, the chloroform-bacilline of Auclair). After about three weeks' delay a chronic meningitis was present which ended in paraplegia with contracture and amyotrophy. These results were like those obtained previously with the caseating poison of this germ (ethero-bacilline). The examination with the microscope gave strongly typical lesions. The tubercles were formed of polynuclear cells at their centers and mononuclear cells of epithelial type in the middle zone and of lymphocytes in their autozone. There was also a large amount of fibrous tissue. From these experiments it is possible to conclude that the sclerosing and caseating poisons of the bacillus of tuberculosis produce in the meninges results of equal intensity.

SOCIETY PROCEEDINGS.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, Held December 4, 1901.

The President, Alexander Lambert, M.D., in the Chair.

Treatment of Lobar Pneumonia.—Dr. Charles E. Nammack read a paper with this title.

Discussion.—Dr. W. Gilman Thompson said that the paper was full of good sense. He sometimes thought it was a misfortune not to have some definite plan for the treatment of such a disease as pneumonia, yet cases of pneumonia vary so much that a method of treatment applicable to all varieties could not be formulated. He had used the inhalation of creosote and other substances and had watched this method of treatment as employed by others in hospital service, but he had not been convinced that it had any modifying influence on the disease. The treatment was based upon the idea that the inhaled substance reaches the focus of the disease, but the affected lung is occluded and therefore the substance cannot be drawn down into that part of the lung where it is most needed. It had been shown experimentally that when such vapor is inhaled it does not penetrate very deeply. He had practically abandoned this treatment because of the annoyance it caused the patient. With regard to the use of poultices and cold applications, he had never seen any difference in the effects of these various topical applications, and hence he was governed by what seemed to give the most relief. When there was much pain a large poultice would give relief, but ordinarily he did not favor the use of poultices, as they disturb the patient. Some time ago the speaker had made experiments to determine how deeply external heat or cold penetrates the body. He had had a patient suffering from an empyema who had a fistula eleven inches deep. A thermometer was inserted into this fistula and hot and cold applications were made externally, but he had never been able to affect the temperature of the parts beneath more than one-eighth of a degree. If such applications were used with this object in view they were certainly fallacious. The treatment was narrowed down to aiding elimination of toxic material and regulating the tension and strength of the pulse. When the pulse was full and bounding, he made use of nitroglycerin or, quite early and for a short time, he used aconite. When the opposite conditions were present, it was very desirable to reënforce the peripheral circulation by such remedies as Dr. Nammack had mentioned. He had not personally made use of the suprarenal extract in these cases, though this agent certainly raises the tension and gives the heart peripheral resistance. Physiological experiment, as well as clinical experience, demonstrates that this will often improve the character of the cardiac contractions. For this reason suprarenal extract might be useful in some cases showing much cyanosis. In some few cases in which he desired to influence the heart, he made use of digitalis. The latter, however, had the advantage that it could be given hypodermically. With regard to the treatment of the temperature, he was in accord with the author of the paper; he seldom attempted to reduce the temperature by cold applications unless the temperature rose above 104° F., or the patient suffered much discomfort from the fever. In such cases he used cold sponging or the cold pack. The latter was very soothing and was a general stimulant to the nervous system. He did not believe in the use of the Brand bath for penumonia, and when penumonia complicates typhoid fever he discontinued the baths, as

he had seen disastrous results from continuing them. It was important to keep the bowels active, securing at least one good evacuation daily. It prevents intestinal fermentation; anything which tends to distend the abdomen acts unfavorably by its mechanical effect on the diaphragm and by reason also of the coincident auto-intoxication. He always disliked to see a pneumonia patient with an attack of flatulent dyspepsia, and when it occurred, he used salol, turpentine stupes and the rectal tube. The use of alcohol in pneumonia had been well described in the paper. It was his custom to delay its use until it was distinctly indicated, never giving it as a routine measure except in grippe pneumonia or to old persons. When distinctly indicated, he would give it, for example, in the dose of one ounce every hour for a few times, or until a definite effect upon the pulse had been obtained, and then reduce the dose. If it were to do good at all, this effect would be secured very promptly. One symptom of pneumonia, which was often difficult to control, is violent delirium with restlessness and jactitation, and rapid pulse. Much had been said about the value of trional in such cases, and he had never hesitated to use it because he had never observed any depressing effect from it. It would often control the delirium in pneumonia even when quite severe. In addition, the bromides and codeine were useful. He hesitated always to give morphine in pneumonia, and when he did use it, it was in very small doses—not more than one-eighth of a grain. Last winter he had seen a case nearly rendered fatal by a physician giving the patient one-fourth of a grain. The same might be said regarding hyoscin, but in alcoholic cases it was difficult to get along without it. It should be used cautiously, not more than $^1/_{100}$ of a grain as the initial dose. He had not bled patients with pneumonia, for one could not tell how long a pneumonia patient would remain sthenic. He did believe, however, in the use of saline infusions in both pneumonia and typhoid fever—indeed, in almost any severe toxic condition in which the patient is overwhelmed with a systemic poison. Intravenous infusion or hypodermoclysis would often accomplish much in extremely severe cases of pneumonia. It was difficult to explain how the saline infusion acts. Possibly it dilutes the toxin in the blood, or acts by improving the arterial tension; at any rate, when the patient is *in extremis* it is a very serviceable remedy and often succeeds when everything else fails. He fully concurred with what had been said in the paper regarding the doubtful value of serumtherapy. Twenty or thirty favorable cases would be reported at times and then nothing further would be heard about them. The extremely variable character of this disease and the danger of drawing conclusions from a comparatively small number of cases should never be forgotten. It was a curious fact that, despite the various methods of treatment employed in hospitals for many years past, the mortality had remained just about the same.

Dr. John Winters Brannan said he thought he could best contribute to the discussion by relating his experience with a method of treatment with which most of the members of the Society were probably not familiar. Four or five years ago Dr. S. O. Vanderpoel had called his attention to an article in the "Medical Record" by a Dr. MacArtney on a new method of treating pneumonia and had asked him to give it a trial. The writer of this article had evidently had a large experience, his argument was scientific and his results had been very good. He stated that before using this treatment his mortality-rate had been about 16 per cent., whereas since adopting this plan in 120 cases there had been only two fatal cases, and they had been extremely severe types of the disease. A number of the patients had been elderly, and others had followed whooping-cough or measles. Dr. Brannan said that he had tried the treatment in 1897 and had carried it out to the letter. The idea was that in pneumonia there is a chill with internal congestion, and if the blood could be drawn again to the surface of the body, benefit would follow. Dr. MacArtney had endeavored to do this by prolonged diaphoresis. His plan was to take several hot bricks, dip them in hot water, cover them with cloths and put them around the patient, who is then covered up with blankets and kept in a profuse perspiration for from four to forty-eight hours according to the effect. The statement was that the temperature would soon fall to normal and the patient would have practically gone through the crisis, although the physical signs might not have changed. Sixty-seven of Dr. MacArtney's cases were aborted. A large proportion had been seen early, with the result that they had a normal temperature, freedom from pain and cough, and easy respiration in a few hours; others yielded only after two days of sweating and a mercurial purge. Dr. Brannan exhibited the charts and narrated histories of five cases in which this method had been tried by him. The first patient was a youth of eighteen, of good physique, but of alcoholic habits. The hot bricks had been applied on the fifth day of the disease, the day of his admission to the hospital, and had been continued for forty-eight hours; then, without any warning, the body temperature, which had been 104° or 105° F., suddenly rose to 109.8° F. Two hours before this the patient had been perspiring profusely and had then suddenly ceased to perspire. With the great rise of temperature he had become unconscious. The pulse at this time had been 140 or over. The bricks were taken away and he was given an ice bath with 25 per cent. alcohol for forty minutes. Toward the end of the bath the boy had had a convulsion; two minutes later he had become rational, and after this recovery had been uninterrupted. The second case was like the first, except that the bricks had been used for only two hours. Then the temperature had risen from 101° to 108°, when the treatment had been discontinued. This patient also had recovered. In the third case, the bricks had been used for three hours and the temperature had risen to 108°, with a coresponding rise in the pulse. After the bricks had been removed the temperature had come down to 102°, had reached the normal in a few days, and the patient had eventually recovered. In the fourth case, the bricks had been kept up for twenty-four hours, when the temperature had reached 107° F. and the pulse 144, though the respirations had not been materially affected. As soon as the bricks had been removed the temperature had fallen to 101° F. without cold sponging. In another day the temperature had risen again, and the patient died. In the fifth case the temperature had risen to 106° F. after eight hours' use of the bricks, but had come down to 99.6° F. afterward and the patient had recovered. In this case it is recorded in the clinical notes that the patient perspired profusely during the application of the bricks, and became restless and delirious, and the pulse became weak as well as rapid. It was at least comforting, the speaker said, to know that persons could have these very high temperatures and still recover. His experience was apparently another instance of good results being often obtained only by the originator of a new method of treatment. It is true that four of the five patients recovered, but it would seem that this was in spite of the treatment and not in consequence of it. In every case the temperature rose even while the patient was sweating, and at the same time the general condition became so alarming that energetic measures were necessary to restore the patient.

Dr. Alexander Lambert said that he, too, had been favorably impressed with the article of Dr. MacArtney. The cases just reported were good examples of heat stroke added to pneumonia.

Dr. R. J. Carlisle spoke of the treatment employed on the Third Division of Bellevue Hospital. He said that there the patient and not the disease is treated. Alcohol is not given unless distinctly indicated. To combat the fever the patient is kept in a cold pack. Digitalis is used sparingly and strychnine is used in small doses—about $^1/_{60}$ of a grain every four hours. For delirium and for the relief of insomnia, codeine is given the preference, though occasionally morphine is used in very small doses.

Dr. N. E. Brill said that it was evident from the paper and the discussion that one should be chiefly guided in the treatment by the indications imparted to the finger on the pulse and by the information obtained from the application of the stethoscope over the pulmonary artery. In spite of anything that can be done many patients with pneumonia will die.

Dr. Alexander Lambert said that he had investigated the serum treatment of pneumonia in twelve cases seen in the hospital. They had been taken just as they had been admitted to the hospital, regardless of the type presented. The action of the serum in all of them had been different from that reported by other observers in that there had been absolutely no change in the number of the leucocytes. The serum itself had been procured from a horse, the germ used being the pneumococcus obtained from the sputum of a pneumonia patient. After having been passed through 400 rabbits, one-twenty-millionth of a cubic centimeter had been used, and when injected into a rabbit it had caused the death of the animal in from thirty-six hours to four days. The dose that he had used for testing the serum had been $^1/_{1000}$ c.c. If the germ were injected behind the ear, and the injections of the serum were made in the leg of the rabbit, from 1 to 3 c.c. would be required to protect. It was evidently not an antitoxic serum, but a form of bactericidal serum. The bactericidal sera differ from the normal sera in that they possess an immune body. The substances which destroy the bacteria in the blood or the red cells in the blood when one blood is injected into another are composed of two definite substances, the immune body and the alexin or intermediary body. Immunization does not increase the alexin, but does enormously increase the immune body. The pneumococcus serum contains an enormous amount of this immune proteid. It gives all the reactions of globulin, but beyond this we know nothing. When this is injected into the blood it circulates through the lungs. In some patients who had, at the time of the injection, a definite pneumococcus septicemia, as proved by examination of the blood drawn from the vein, these pneumococci disappeared after the injection of the serum, and the patient recovered. This fact had led Dr. Lambert to think that it might be useful to use the serum in combating the pneumococcus septicemia occurring just before a fatal termination. By injecting the serum into the blood one introduces the immune body. It had been recently found that in typhoid fever the alexins were absent. In the use of typhoid serum the normal alexin is used up, and hence the desired action could not take place. Whether the pneumococcus serum failed to act for this reason or not he could not say, but in some patients it had had absolutely no more effect than water. In other cases the temperature had been reduced and had been kept down about two degrees, and the pulse had remained ten or twelve beats per minute lower. Three of the patients who recovered had been extremly bad alcoholic cases. One had had a right upper lobe pneumonia, which had involved successively the entire surface of both lungs. The serum in the blood could not affect the exudate which is in the outer space of the lungs—in other words, the serum was acting in closed tubes upon what was practically out-of-doors. Those who had spoken about the use of strychnine and glonoin had not stated whether they gave it by mouth or hypodermically. It seemed to him there was a great difference between these two methods of administration. The remedies would act surely and accurately when given hypodermically, while they would often fail to act satisfactorily if given by the mouth. Of course, in hospital practice the quantity of alcohol administered was enormously larger than in private practice, simply because most of the patients were accustomed to use large quantities of alcohol. This seemed to him the only reason why alcohol, which is a poison, acted so beneficially. He had found that alcoholic cases with intense delirium were very much benefited by the bed-bath and sprinkling the body surface with tepid water. This would often invoke sleep. He agreed with Dr. Thompson that trional is one of the best drugs to use for controlling the delirium of pneumonia.

Dr. Nammack closed the discussion. He said that he had not made mention in his paper of inhalations in the treatment of pneumonia, although during the first ten years of his medical experience he had been associated with a physician who believed firmly in their use. They had continued to use inhalations for a long time, until a physiologist had proved conclusively that the substances inhaled go no further than the primary division of the bronchi. However, two years ago he had treated some cases with heated oxygen, and one or two desperate cases had recovered. For a time he had thought there might be something in the claim that by heating the oxygen its diffusibility is increased. Another physician had subsequently told him that he had experimented upon a dog with superheated air, and had proved that the heating of the air or gas amounted practically to very little. He would congratulate Dr. Brannan on his courage in trying the hot bricks in four cases after the first case had developed a temperature of 109° F. As a rule, in private practice he administered strychnine and glonoin by the mouth, but he thought they act better when given hypodermically. The temperature in pneumonia and in acute infections generally was not the bugbear it was once thought to be, though, of course, this remark did not apply to hyperpyrexia. Among the poor, and in ill-ventilated apartments it was extremely useful to open the windows and give plenty of fresh air. The remarkable results reported by Newall among negroes treated in open cabins were more probably attributable to the free access of fresh air than to his very free use of strychnine.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 16, 1902.

The Vice-President, Hermann Knapp, M.D., in the Chair.

The scientific business of the evening consisted of a discussion on the subject of infant-feeding, opened by Dr. Joseph S. Winters.

Iron in Infant Food.—Dr. Winters said that milk is a very complete food for infants with the single fault that it is poor in iron. This is the reason why the infant is born with a much higher percentage of iron in its tissues than is normal to the adult. The iron is contained especially in the liver, from which Nature draws her stores for use in the important physiological functions in which it is concerned. This

supply of iron becomes exhausted, however, before the end of the first year of life and unless something is added to milk for the feeding of the infant the child becomes anemic. Cereals contain an important amount of iron in a readily assimilable form and consequently it is these that must be added to the infant's food in order to make it complete for nutrition. Oatmeal is the best of the cereals for this purpose in its general composition, as it contains more iron by weight than does beef. Oatmeal has certain objectionable qualities, one of them being the presence of a considerable amount of indigestible cellulose, but this can be removed by straining, and the oatmeal soup thus made becomes an ideal element for infant-feeding. In summer barley may be employed, because it seems to have less tendency to produce disturbances of the gastro-intestinal tract, though barley is poorer in iron and in fat than is oatmeal. The yoke of egg contains a large amount of nuclein—a very important substance for nutrition; it contains especially considerable amounts of phosphorus and iron, present in the form of very soluble organic compounds readily assimilable even by the infant organism. Besides this the yolks of eggs are rich in lime-salts and fat. The addition of a certain amount of egg to the diet of children should be begun shortly after nursing ceases to provide the main portion of the nourishment. A dry crust should be given the infant about twice a day after it begins to develop its teeth. The exercise of the masticatory muscles thus induced is excellent for their development, for children's jaws may fail of their proper development if mastication is not encouraged. Do not advise, as is so often the case, that infant food shall be always strained or chopped or minced; this deprives the infant of one of its best forms of exercise, that of chewing. The chewing of crusts, moreover, develops the gums and leads to the proper extrusion of the teeth, in additon to serving to keep the mouth clean. It must be borne in mind that the metabolism of nutrition in adults has for its only purpose the conservation of the individual in his present state. It provides only for passing needs. The metabolism of the child is meant to provide material to be stored for future use and is meant also to subserve the purposes of constant development and growth. The earthly salts are not needed by the adult, but they are indispensable in the child. Fat is of very little use to the adult except to provide heat, but it is a tissue builder in the child. The use of carbohydrates is scarcely necessary for the adult, while their consumption by the child serves to shield the proteids from absorption, and so leaves plenty of proteid material for the development of the organism.

Classes of Food.—There are five general classes of food, the nitrogenous, the fatty, the carbohydrate, minerals and water. All five kinds of food are needed in the child. Only the nitrogenous, the mineral and water are indispensable to the adult. Proteid material must be supplied for the constant growth of muscle and also to make up for the loss due to the constant activity of the child. This is the most important ingredient in the child's food and its absence leads to the stunting of the infant organism and the pallid state so familiar to the medical attendant on children. The phosphates are particularly necessary for new growth. All the cells of the body contain salts of phosphate. The nerves and the bones require them in especially large amounts. They are important also for the blood. It is not enough, however, simply to supply the phosphates as mineral salts; they must be given as organic compounds in forms in which they can be readily assimilated by the growing organism. This same thing is true of other organic salts. Scurvy occurs in children fed on heated milk because the heat has caused the breaking up of the organic salts so important for the child's tissues and they are present in the food in forms in which they cannot readily be assimilated. Not infrequently when scorbutic tendencies become manifest, the physician suggests that meat juice or scraped meat should be given to the child; these are mainly composed of the salts of the meat, they are very stimulant and serve only to irritate the nervous system falsely into manifestations of health that are really but lessening its vitality. Fat is an extremely important ingredient of infant food, it is especially needed in bone formation and, of course, the bone skeleton is constantly growing. The bone marrow is most important in the formation of blood. The supply of a proper amount of fat, then, is indispensable. The child of five requires half as much fat as an adult. The important question in the feeding of children is, When shall animal food other than milk and eggs be given? Meat is four times as nitrogenous as milk and contains twice as much nitrogen as farinaceous foods. A very large proportion of the nitrogen of meat, however, consists of extractives; these substances are not tissue-builders, but are only nerve stimulants. For the purposes of growth, then, vegetable proteids are just as valuable as meat. The nitrogen obtained from vegetables, besides, is free from admixture with the extractive crystalline substances which are so harmful. Meat is simply a stimulant and as such is not good for the child. Besides, the use of meat with its piquant flavors creates a distaste for cereals and milk and fat. The use of meat is as surely degenerative in its effect as alcohol. Tissue-building depends on alkaline products. All the tissues of the organism have an alkaline reaction. In the digestion of meat acids are formed and the absorption of these acids disturbs all cellular metabolism in the infantile and sensitive organism.

Vegetable Iron.—There is a distinct relation between the coloring matter of vegetables and the coloring matter of blood. Many years ago Bunge showed that iron occurred in normal physiological conditions in vegetables and could more easily be absorbed from them than from any other substances. Most of the green or red or yellow vegetables have an iron organic coloring matter in notable amount. The present teaching to give beef juice in anemic conditions is an unfortunate error. Undoubtedly many of the nervous diseases which have become so familiar in recent years in children are due to an excess of meat in the diet. The increase of such afflictions as chorea, petit mal, night terrors, laryngismus stridulus, is due to the irritative condition of the nervous system thus induced. Undoubtedly much of the irritability and the peevishness of modern children, even when no actual nerve disease exists, is due to too early allowance of meat in the diet. Meat should not be given before the child has completed its second year and then not more than half an ounce. This should not be allowed oftener than every second day until the child has reached its fifth or sixth year. The increase of weight and muscles that occurs as a consequence of the consumption of meat is readily lost. This is a common and well-recognized clinical observation. The increase of weight that comes as the result of the use of farinaceous food is much more durable. This can be readily understood when the solidity of the tissues of country children and their capacity for withstanding disease are recalled.

Forcing on Meat.—Dr. Milton Yale said that Dr. Winters' conclusions were also his own. It is deleterious for any child to be forced on meat. Many of the children of the better classes become gouty and arthritic very early in life as a consequence of the early consumption of meat in too large amounts. Very little

normal development is allowed to these children. All the exercise that they have is a personally conducted walk with their nurses in which even their volition as to what form of exercise they shall take is of very little natural benefit. Such children, as the result of meat stimulation, learn to refuse the more healthy food materials that would be proper for them. The use of the squeezed juice of steak is an especial mistake and its stimulant effect is such that Dr. Yale is accustomed to speak of it as the child's cocktail. The kitchen is really at fault in many of these cases; it is much more easy to prepare squeezed beef-juice than the vegetable foods that would be much more suitable. Personally, Dr. Yale finds it of extreme advantage to make friends with the cook and to make suggestions with regard to the preparation of food that will be of practical service. Childrens' meals are apt to be neglected in the cooking because prepared before or after regular meals in the kitchen and because all the culinary arrangements are made with the idea of serving the adults of the household. The cook in the household plays an important rôle in the feeding of the children. Frequently, though she may know perfectly well how to prepare food for adults, she is inexperienced in what is proper for children; yet it is on her that the preparation of the child's food ultimately falls. Children like the piquant taste of meat preparations, and so are prone to get more of these than is good for them. As a rule the mother does not wish to disturb the household arrangements below stairs and so the doctor must prove the intermediary. It is good for the doctor to know his cook-book and for the cook to know the doctor.

Country Life.—Dr. Dorning said that he could only emphasize some of the good points made by Dr. Winters. It is a very favorable thing for children to be brought up in the country. Outdoor fresh air in the country gives a relish and enables children to take more food, while the country tendency is to give them the simpler foods. The present tendency to give meat juice early in infant life must be deprecated. It is no unusual thing to find that at three months of age the child is taking half an ounce to an ounce of meat-juice several times a day. No meat should be given until the third year is nearly reached. The child does not need its stimulant effect and the nutrition it supplies does not justify its use. It is not enough to give as food only the chemical substances that are necessary to support life. They must be there in an assimilable form. Charcoal and sea-salt and water actually contain all the chemical ingredients that support life. Needless to say they are not ideal food materials. The organism must have the chemical ingredients necessary in the form of organic combinations that can be used for metabolic purposes. Whole wheat should be given rather than the fine milled wheat which lacks so many important ingredients that form the basis of ordinary flour as at present supplied.

Prophylaxis of Disease.—Dr. Southworth said that the question of child-feeding is especially important as regards the prevention of disease. Children's ill health is often due to poor nutrition. Lowered vital resistance because of this allows them to contract various infectious diseases. Well-nourished children escape illness. Nurslings having an abundance of ideal food for their age practically always escape infectious diseases. The transition period of a child's life, when it passes from milk to a mixed diet, is especially dangerous with regard to the contraction of various ailments.

Milk as Food Basis.—Milk must form the basis of infant food until the third year. This must be impressed upon parents for they are liable to neglect it. If children refuse to drink milk in the ordinary way from a cup, it is even advisable to prolong the use of the bottle for some time. During the latter part of the nursing period cereals must be introduced into the food, at first being used to dilute the milk. The transition period becomes less dangerous under these circumstances.

A Good Word for Beef-Juice.—Dr. Southworth would not condemn beef-juice as freely as most of the other speakers of the evening. He believes that it is an excellent tonic and a thoroughly stimulant hematogen. Pale children, weak and delicate, who are not able to obtain sufficient nourishment from the digestion of vegetable material, are often able to obtain their nutrition better from meat than in any other way. Of course, too much must not be used and it is evidently the abuse of meat-juice that has led to all the serious objection to it. During the second summer particularly, when, owing to the drain on the system of teething and the digestive disturbances of the transition period, there are special calls upon the vitality of the child, meat-juice as a nutritive stimulant makes an excellent addition to the dietary. It must not be given up entirely, then, because it happens at times to be used irrationally by those who do not realize its proper limitations.

Infantile Eye Diseases.—Dr. Bates said that many of the eye diseases of children are obstinate to treatment, except under proper diet. Scrofulous conditions of the eye, eczema and phlyctenulæ must be treated by improvement of the general condition first of all. In many of these cases, the ordinary milk and carbohydrate diet will fail to build the child up properly. Dr. Bates recently had a case under observation in which the patient failed to get better under a mixed diet in the city and grew worse in the country on an exclusive milk diet. When given cod-liver oil, however, with an abundance of meat-juice, improvement set in almost at once. In the anemic conjunctivitis of children that is so often accompanied by tendency to nose bleed, meat-juice is an important stimulant nutritive that is actually remedial in effect.

Return to Nature.—Dr. Elmer Lee said that the secret of good feeding for infants consists in a return to organic nature. The dividing of nature's units of food material reduces their value. Only part of the wheat is ground up into the modern flour and so some of the most nutritive portions of the cereal fail to get into the bread. Under the present system, children are overfed, but undernourished. The animals live on cereals and vegetables and convert them into their tissues, but in so doing exhaust a part of the material in the cereals and grass. Meat is the poorest and the dearest of foods. It costs four times as much and goes only one-third as far as does wheat, for instance. The human body is a storage cell. The ingredients that go to make it up are the battery fluid. The latest storage battery that promises to be the most successful has an alkaline reaction; all the old storage batteries had acid reaction. All human tissues are alkaline, yet they have been treated with meat, which has an acid reaction.

Prepared Foods.—In closing the discussion Dr. Winters said that the chemical composition of food, as is well known, by no means represents its nutritive value. There are many prepared foods on the market, but practically all of them are founded on the idea that certain chemical ingredients, without regard to their origin, may become nutritive portions of infant food. All artificial foods are prepared on this false notion. Every one of them should be discarded, because in their preparation organic combinations are broken up and the material is present in a form in which it is not readily assimilated, especially by the infant organism. As a matter of fact, food materials, treated as are those for the artificial foods, are deprived

of every bit of nutritive value. It would be very easy to recognize this fact, only for the conditions in which they are used. Clinical deception is perpetuated because these foods are used in combination with milk. The other ingredients are worthless, or of very little nutritive value, but the milk serves to keep up the infant nutrition to a certain extent. In Dr. Winters' experience the use of whole wheat is a common source of digestive disturbance in the children of better families in our cities. The child's stomach does not seem capable of digesting the coarser materials of flour that are usually thrown out in making the finer flour. Dr. Winters has had a recent experience in which a child fed on whole wheat and suffering from severe digestive disturbance and malnutrition for a long time got well without drugs when the food material containing so much cellulose and irritant indigestible material was removed from the dietary. Too much can not be said against the abuse of meat-juice in children. Dr. Winters has seen anemia develop hundreds of times as the result of the use of meat-juice in place of one of the feedings, as is so often advised now. There is no surer or more frequent cause of anemia in children on Manhattan Island than the use of meat-juice. The sooner its employment is discouraged under the age of two years, the better it will be for the health of large numbers of children.

NEW YORK ACADEMY OF MEDICINE.

Section on General Medicine.

Stated Meeting, Held January 21, 1902.

The Secretary, James N. West, M.D., in the Chair.

Ergot in Graves' Disease.—The paper of the evening on ergot in exophthalmic goiter was read by Dr. Van Sanvoord. Dr. Van Sanvoord has employed this remedy in a number of cases; he reported good effects from its use before and now has every reason to think that it is very beneficial in the symptomatic treatment of the disease. He asks that other observers try the remedy and report their results. It would seem that a therapeutic advance in the treatment of these cases, usually so obstinate, may thus be effected.

Distance Cardiac Murmur.—Dr. Louis Faugère Bishop presented a patient with a loud-beating heart-murmur that could be heard at some distance from the chest-wall. The patient, a colored woman of about forty, suffered four years ago, from a severe fright; afterward she developed cardiac symptoms; these continued for some time and she came to the Colored Hospital, where it was found that a loud murmur, systolic in time, was audible for some distance from the chest-wall. The patent has been conscious of this murmur herself for some time. She has no very severe symptoms from her cardiac affection and continues to be reasonably comfortable.

Myocarditis.—Dr. Bishop presented two cases of myocarditis. In each of them a distinct sign of beginning cardiac incompetency was tenderness below the xiphoid cartilage. The patients were able to do a certain amount of work, after intervals of protracted rest, but then began to have cardiac symptoms. One of the most significant warnings that they were overworking their hearts was the occurrence of this tenderness, just below the lower end of the sternum. In the male patient particularly, this extended somewhat from the median line toward the right and was evidently due to some congestion of the liver.

Dilatation of the Heart.—Dr. Bishop presented a patient suffering from great dilatation of the heart, whose cardiac incompetency has been quite marked. He is a scene-shifter who suffered from rheumatic valvulitis when quite young; his occupation required so much rushing around that he developed an acute dilatation of the heart. There was a peristaltic pulsation all over the precardium and a distinct gallop rhythm. General anasarca was present and the liver was enormously swollen and quite tender. Dr. Weber, the house surgeon, found some good digitalis-leaves at a wholesale drug-house and made a home infusion of digitalis, which was freely given; the man passed 200 ounces of urine the first day, 150 ounces the second day, and 100 ounces the third day. Under this treatment the anasarca rapidly disappeared. The result shows the effect of really good digitalis.

Musical Murmurs.—Dr. Burt said he had met with a number of these murmurs that could be heard some distance from the chest-wall. In one case he could hear it for six inches; in another he had been able to hear it for a distance of two feet. By a strange coincidence this former case of distance murmur followed immediately upon a fright; the patient had noticed it himself and came to tell of the music-box in his chest; it had been noticed also by his wife. Under rest and heart tonics it decreased and gradually disappeared. The patient was, however, a dispensary patient and the present condition is unknown.

Bovine Heart.—Dr. Burt presented a patient with an immensely enlarged heart. The condition of dilated hypertrophy is very extensive, so that the outer border of the heart can be felt as it rises in pulsation against the ribs, three inches at least outside of the nipple line. The immense size of the heart can be judged from this, since it dips back under the lung and only a portion of the anterior surface comes against the precardium.

Aneurism of Aortic Arch.—In this same case there is a large aneurism of the ascending portion of the arch of the aorta. There is a distinct thrill and bruit and an expansile pulsation. The most interesting point about the case is that the history seems to indicate that the cardiac condition and probably the aneurism also date back for twenty years. Both conditions have become stationary and neither of them produce very serious symptoms. The dulness to percussion shows the outline of the large aneurism and this has also been seen by means of the X-ray. Dr. Burt presented an X-ray picture of the interthoracic condition.

Tricuspid Regurgitation.—Dr. Burt presented a case of leaking at the tricuspid valve with expansile pulsation of the liver. The patient gives a history of excessive beer drinking and when he came to the hospital was suffering from an immense ascites. His liver was found to be considerably enlarged, though this grew less in size under rest and cardiac tonics. The heaving impulse in the hepatic region is evidently due to tricuspid regurgitation into the liver. This impulse can be felt very plainly even when the patient is standing up and is at once apparent when he is lying down. In this case mitral regurgitation accompanies the tricuspid regurgitation; the subjective symptoms are not very serious. Dr. Burt believes that the removal of the fluid somewhat slowly from the abdomen in ascites favors its non-recurrence. It gives no guarantee, however, against the return of the fluid. When the old Dieulafoy aspirator was used, and it took nearly a day to remove a large amount of ascitic fluid, patients still had regular reaccumulations of the ascitic fluid.

Heart Lesion and Prolonged Life.—Dr. James K. Crook presented a patient whom he had presented to the New York State Medical Society at its meeting five years ago. This patient has suffered from mitral leakage since 1864. In January of that year he suffered from articular rheumatism, being at that time sixteen years of age. In April of the same year, he suffered

from cardiac symptoms and the attending physician told him that he had a mitral lesion. He improved somewhat, but as his cardiac symptoms continued he consulted Dr. Flint of New York who assured him that his physician's diagnosis was correct and that he had a mitral cardiac lesion. Since then he has come under the care of more than half a dozen well-known New York physicians, all of whom assured him of the existence of a heart lesion and most of them gave an unfavorable prognosis. When presented to the New York State Medical Society in 1897 he was in excellent general condition, suffering from no subjective symptom, able to continue his occupation and only troubled occasionally by digestive disturbances. At the present time this very satisfactory subjective state continues. He has suffered from mitral regurgitation for thirty-eight years and there is at the present time a systolic murmur at the apex of his heart which is slightly transmitted toward the left. The chief interest of the case is, of course, the long continuance of his condition without serious symptoms. It is very evident that there is a better outlook in these cases of mitral regurgitation than has usually been supposed. Insurance companies are coming to recognize this fact and to modify the unfavorable prognosis on which they entirely refuse these cases.

Mitral Regurgitation for Forty-six Years.—Dr. James J. Walsh said that he had seen a case in Vienna in which the history of mitral incompetency extended over forty-six years. When seen the patient was approaching his seventieth year and over forty-six years before had been told by Skoda that he was suffering from mitral regurgitation as the result of rheumatism. His rheumatism occurred some three years before his consultation with Skoda so that it seems probable that he had lived for nearly or quite fifty years with a mitral lesion that gave a distinct systolic murmur at the apex. During this long life he had very few subjective symptoms and his occupation as a shoemaker had not proved burdensome at any time.

Good Prognosis.—Dr. Burt said that the good prognosis of cardiac lesions is not confined to the mitral valve and that even aortic insufficiency may also exist for long periods without giving serious symptoms. He had a patient under his observation some time ago suffering from aortic insufficiency. This lesion first manifested itself forty-five years ago. The man had gone through the Civil War and afterward remade his fortune, which had been lost by the fall of the Confederacy. He became the lawyer for the Plant system of railroads, so that he had accomplished plenty of work and yet had suffered very little from his heart. Occasionally, at times of overstrain, there were symptoms of cardiac incompetency and stimulants and heart tonics were needed. He died suddenly about two years ago as the result of his heart lesion. Dr. Burt said that the best sign that the prognosis of heart lesions must not be as unfavorable as formerly is found in the fact that such patients so often outlive the physicians who make the bad prognosis. The insurance companies are not so prone absolutely to refuse heart cases as before, and arrangements are being made by which sufferers from cardiac lesions can be accepted under modified conditions. This is as it should be for the prognosis in cardiac cases is not absolutely, but only relatively unfavorable. The future of the patient depends upon the condition of his heart muscles and its ability to compensate for the mechanical disadvantage of the valvular lesion.

Musical Distance Murmur.—Dr. Alfred Meyer presented a patient in whom a distinct musical murmur can be heard in a quiet room some distance from his chest-wall. The man is thirty-three years of age, has a negative family history and never had any rheumatism. Three years ago, when he came under observation because of symptomatic cardiac incompetency, he gave a history of smoking ten cigarettes a day and of taking considerable alcohol. His alcoholic history was carefully inquired into by Dr. Meyer himself in order to be sure of the details. It is often the custom to say no alcoholic history or moderate alcoholic history, without sufficient inquiry. The man confesses to having taken four drinks of whisky a day, one of them before breakfast on an empty stomach. This seems to oe an important detail in the alcoholic history, since the absorption of the alcohol is so rapid at such times. The patient first heard the noises in his own chest and then his wife heard them. Shortly after this, as the result of some anginoid symptoms, he came to the hospital, where it was found that there was a musical diastolic murmur best heard in the aortic region to the left of the sternum, but also audible all the way down the sternum and in the back as low as the sacrum. The man improved considerably under rest and heart tonics, and has been able to do some work without serious discomfort.

Hearing Distance Murmur.—In order to hear distance murmurs well it is important that the room should be extremely quiet and the ear should become accustomed to the note of the murmur by listening to it with a stethoscope until it is fairly impressed upon the auditory apparatus. There is no doubt that under these circumstances the murmur is heard better and at a greater distance from the chest. It is not that the psychological element adds to the distance by the imagination of sound, but that the physical auditory apparatus is rendered more capable of hearing.

Distance Murmur.—Distance murmurs are very rare. The explanation of the murmur that has been given as the result of autopsies in a certain number of these cases is that there is a dilation of the orifice at which the murmur occurs, in this case the aortic ring, and that as a consequence the valves do not completely close up the orifice and the regurgitating blood flowing over the tightly stretched edges of the valve leaflets produces vibrations and consequently the musical sounds. The mechanism is thus somewhat the same as the air going over the vocal cords and producing sounds. In one reported case there was some thickening of the edges of the valves, but rough surfaces do not produce a musical murmur and as a rule one must conclude that there is no pathological change in the valve tissues.

Etiology.—In the present case the murmur seems to be due to a combination of alcoholism and excessive use of tobacco. All other causes of heart disease can be excluded. There is some suspicion of lues in early life, though there have never been any serious symptomatic or pathologic conditions as a result. There is an accompanying systolic murmur in this case, but this furnishes no hint to the etiology of the valvular disturbance and does not supply an explanation for the diastolic musical murmur at the same valve.

Diastolic Musical Murmur.—Dr. Burt said that this is the first diastolic musical murmur that he has ever heard. Systolic musical murmurs are rare enough, but diastolic musical murmurs are much rarer. Dr. Burt has seen only two cases with distant musical murmurs in twenty-five years' experience of heart disease. This experience has included the large number of admissions to the Bellevue Dispensary for over twenty years.

Disposal of Cardiac Cases.—Dr. Martin gave the clinical history of a case of chronic myocarditis. The patient, a woman of forty-nine, suffered from carcinoma of the breast four years ago, and the gland was

removed. There was secondary carcinoma of the lymphatics, and these were operated upon six months later. There has been no recurrence and at the present time the X-rays fail to disclose any cancerous tissue. She is suffering, however, from cardiac incompetency and has made the rounds of the hospitals. Under diet and rest with proper nursing and care she improved. As soon as dismissed from the hospital, however, and compelled to work for her living, she relapses into her former condition of cardiac incompetency and must take to her bed. Such patients cannot be kept in hospitals for a long time, because they would soon take up all the available space. What is needed is a sanitarium or home for cardiac cases. They are unfit for self-support and when out of hospitals are, unless under exceptionally good circumstances, sure to be in distress. An attempt has been made to supply hospital care and treatment by informing visiting nurse associations of the presence of such invalids in certain parts of the city and calling attention to their special need for care. It is possible that these benevolent nursing societies and college settlement visitors and those from other charity organizations might be warned in the same manner, and suggestions given as to the way in which they could be of help to such patients. Certainly at the present moment these cardiac cases present an important and, as yet, unsolved philanthropic question that demands solution in the immediate future. Charity could find no better or more deserving field for its exercise than among this class of patients.

Solution of Problem at Colored Hospital.—Dr. Bishop said that one solution of this problem was at present in actual progress at the Colored Hospital in this city. These cardiac patients are kept in the hospital wards, where, fortunately, as yet there is no lack of room for all applicants. Whenever, as the result of rest in bed, careful diet, nursing and medical care, they are well enough to work, they are allowed to help with the various duties of the hospital, and especially to do light work in the laundry. This enables the hospital to be somewhat self-supporting, yet keeps these patients under constant medical supervision, so that their condition does not become serious, and whenever symptoms supervene, they are once more put to bed. Dr. Bishop thinks that the real solution of this problem of care for cardiac patients must come in the form of an institution similar to the epileptic colony. Cardiac patients need the outdoor air and a certain amount of light farm work may not prove too exhausting for many of them. Patients themselves will not be satisfied in an institution where they have nothing to do and where they have no sense of accomplishing something for their own support. A colony seems an ideal solution of a difficult philanthropic problem and this idea must be considered first of all by those who would benefit these cardiac patients.

Good Nursing.—Dr. Burt said that the term "good nursing" has recently come to be abused. Doctors use it and imply that it is the only method of treatment for many forms of disease. The general public accepts an entirely wrong significance of the term, quite different from that intended by the physician. "Good nursing" means not only the presence of a trained nurse in charge of the case, but proper symptomatic treatment. Without the treatment of symptoms, as a rule, nursing is a failure. For symptomatic treatment a very careful, conservative physician is needed in charge of the case. When doctors use the term "good nursing," they should impress the idea that this implies good medical attendance as well as mere nursing.

Special Hospital.—Dr. Burt said that for cardiac cases there is need of a special hospital quite as much as for tuberculous cases. At the present moment the hospitals are entirely unable to provide the necessary room for the chronic cases of heart and arterial disease that are constantly under treatment. When philanthropists get through with the foolish notion that the head is the only part of the human organism that needs specially to be cared for, they may do something for the heart as well as the head. One would be tempted to think that the reading of many books was the one thing necessary in life, as if there were not quite as much harm as good done by reading. Physicians who see so much suffering in the world see many opportunities for the investment of philanthropic funds where they would do much more for humanity than they can invested in libraries.

Care of Dependents.—Dr. Alfred Meyer said that in the care of cardiac patients, as with regard to those suffering from tuberculosis, there is always the additional question of the care of those dependent upon the patients, as well as the patients themselves. This is really a therapeutic question for it may be well understood that no patient suffering from serious illness can improve consistently in health and gain strength with the knowledge that those whom he loves are suffering while he is under care. Other countries have faced this question of the care of dependents, especially as regards the question of tuberculous patients, and private charity must face it in this country.

Medical Philanthropy.—With regard to medical charity Dr. Meyer finds very promising indications of the trend of present day charity toward medical objects. It is sometimes said that medical men and their work for the poor are unappreciated by the general public; as a matter of fact, however, medical men are placed on a higher plane of consideration than are those of other professions, and while more is expected of them there is an underlying generous appreciation of their professional work that is of itself a striking compliment to professional philanthropy. Nearly every one finds it easy to say how money shall be spent for philanthropic purposes and the millionaires who have it to distribute find it a difficult problem to satisfy the many claims. True humanitarianism, however, is an especially prominent feature of the feeling of the wealthy at the beginning of the new century.

NORTH BRANCH OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Held January 16, 1902.

The President, A. M. Eaton, M.D., in the Chair.

The Diagnostic Value of a Digital Examination in Diseases of the Rectum.—The author, Dr. H. A. Bray, dwelt at some length on the fact that the general practitioner treats diseases of the rectum too much from a symptomatic standpoint and without making local examination. Patients with rectal difficulties usually present symptoms of extreme nervousness, melancholia, sometimes with suicidal intent, pain in the rectum, digestive disturbance, disorders of the liver, etc., and very often the patient is treated for the most prominent of these symptoms without the real cause of the trouble being suspected. Several cases were cited in support of this theory; one patient had been treated by many physicians for chronic constipation. When he came under the author's observation a digital examination was made which revealed a stricture 2½ inches above the external sphincter muscle. In another case which was being treated symptomatically for constipation, local examination revealed carcinoma of the rectum situated two inches above the external sphincter muscle. The method of making the examination was given in detail and especial stress was laid upon the importance of ex-

amining the parts close to the anus, as well as those higher up in the bowel.

Operative Treatment of Hemorrhoids.—Dr. Charles F. Nassau read this paper. The different methods of procedure in operating on this condition were fully discussed and the view expressed that the ideal method of operating is to treat the hemorrhoidal area in the same manner as one would treat a varicose condition in any part of the body, thus avoiding the pain produced from unhealed ulcerating surfaces, the result of sloughing away of ligatures, or the granulating lines left by the clamp and cautery. As regards the use of escharotic injections, they were considered of no use in external piles and, although producing considerable benefit in some cases of internal hemorrhoids, the dangers attendant upon their application were such as to overbalance their merits. Local infiltration anesthesia was recommended in suitable cases, although it was thought to increase the technical difficulties of the operation. In cases having comparatively small internal hemorrhoids, stretching of the sphincter ani and careful attention to the fissures (the application of the cautery, division of the base to healthy tissue or complete excision, followed by careful suture) was recommended. In minor cases of isolated external piles, excision of the veins involved followed by careful suturing of the skin wound was recommended. The Whitehead operation, while based upon correct grounds, was considered faulty in its technical details, and, as it is also sometimes followed by stricture and even incontinence, it was not advised. For the more difficult cases the excision of the entire pile-bearing area, followed by suturing, was thought to be the most desirable procedure. This operation can be done either under local anesthesia or ether, according to the indications of the particular case. Considerable stress was laid upon the importance of general and personal hygiene following this treatment and the patient should be especially instructed to secure a daily action of the bowels.

The Diagnosis and Treatment of Carcinoma of the Rectum.—Dr. George C. Ross considered that there are five varieties of this condition, epitheliomatous, scirrhous, encephaloid, colloid, and melanotic carcinoma or sarcoma, the frequency of their occurrence being in the order named. The most common form of cancer of the rectum is the variety of epithelioma known as adenocarcinoma. The most rapidly fatal form is the sarcoma or melanotic carcinoma, which is also the most rare, only eleven cases of this variety being recorded. The importance of digital examination and inspection in all cases of local ailment of the rectum was emphasized and the author considers that in cases of doubt the administration of a local anesthetic, or even of ether, if the case indicates, is not only permissible, but demanded when necessary in order to secure a specimen of the growth for microscopical examination. Cancer more frequently occurs in old age, the percentage of cases increasing very rapidly after the age of twenty years.

Total extirpation in the early stages of the disease was considered the only hope of a cure, while in the later stages palliative measures alone can be employed. Statistics regarding the immediate mortality-rate were given and it was shown that about twenty to thirty per cent. of the cases are immediately fatal when radical measures are employed, the causes of death being peritonitis, shock and retroperitoneal infection, with resulting septicemia. There are very few reported cases in which the patients have remained perfectly well for a period of four years, and the best authorities on this subject seem to give a very unfavorable prognosis. The two principal methods used for extirpation of the diseased rectum are Kraske's operation and its modifications and one which is applicable in the female, using the route of the perineum to gain access to the bowel. This operation is claimed by those who have used it to be a very satisfactory one. In the cases in which radical treatment is not indicated, either because the disease is too far advanced or for any other reason, colostomy is the only alternative; this operation was also recommended in some instances as a preparatory measure in order to allow the patient to build up his strength before radical procedure was undertaken.

Discussion.—Dr. William L. Rodman opened the discussion and stated that he considered too much stress could not be laid upon the importance of a thorough digital examination in diseases of the rectum. In regard to the different varieties of carcinoma he considers adenocarcinoma of the rectum of most common occurrence; in his experience the scirrhous and encephaloid forms of the disease have been rare. Several instances were noted of cases which had come under his observation in which, contrary to the usual rule that carcinoma of the rectum usually proves rapidly fatal, five, ten or even twelve to fifteen years had elapsed before death, the patient in the interim remaining in fairly good general condition. If radical procedure is to be undertaken the importance of early operation was urged, and when the disease has become far advanced before surgical relief is sought colostomy is thought to be the most advisable measure, as at this time only palliation can be hoped for, and this operation seems to afford more relief than any other. With reference to the different operations in use for the removal of hemorrhoids he thought that ligation is to be preferred. The Whitehead operation makes a major procedure out of what should be a minor one. Excellent results may follow carbolic-acid injections, but the untoward results sometimes following this method more than overbalance its merits. The chief objection to the clamp and cautery seems to be the liability of hemorrhage following the operation if the stump is cut off too close. In some instances embolism, followed by sudden death, has occurred. In the ligature operation, the hemorrhage, if it occurs at all, usually occurs before the patient recovers from the influence of the anesthetic and no instances have come under his observation in which secondary hemorrhage has taken place.

Dr. E. W. Holmes urged the necessity for thorough local examination in all cases of rectal diseases and cited instances where under mistaken diagnosis, due to the physician relying wholly upon the clinical conditions present, grave errors had been made in treatment and relief by operation delayed until it was too late. Reference was made to an electric proctoscope which had been recently placed on the market and which seemed to be a very valuable instrument.

Dr. G. Betton Massey discussed at some length the different varieties of cancer and the various methods employed in their treatment. From his own experience he is inclined to favor the electric cautery. In two cases which have recently come under his observation he has used this method with very satisfactory results. He especially urged early recognition and treatment of this condition.

Dr. Mordecai Price expressed the view that the different operations performed by different surgeons for rectal disorders are due principally to the individual's familiarity with the particular operation which he prefers. Formerly he was much in favor of the Whitehead operation, but some years ago he saw a case in which the results were such as to deter him from practising it further. Since that time he has been using the clamp and cautery and has never experienced any untoward

results therewith. Regarding carcinoma of the rectum he is of the belief that there are very few, if any, cases in which it can be cured.

Dr. Lewis H. Adler considered that, notwithstanding the fact that many surgeons are opposed to operating on hemorrhoids when they are in an inflamed condition, it is better to operate at this time than to wait until the disease has made such progress that the patient is greatly weakened thereby, which will be the result in a majority of the cases, owing to the fact that when the patient is not suffering pain from the piles, he will not consent to an operation. Stress was laid upon the importance of differential diagnosis between external and internal piles and for the relief of the external variety the thermocautery was recommended. He considered the clamp and cautery superior to the ligature and believed that when this method is properly used the danger is practically nil.

Dr. Andrew J. Downes referred to the use of the ligature and also the use of the clamp and cautery and considered that one of the most essential points was to be sure not to include the skin in either the clamp or ligature, as he felt sure that this was responsible for much of the pain following either method. For the purpose of controlling hemorrhage, he recommends the electro hemostatic forceps in place of the ligature.

BOOK REVIEWS.

A Manual of Venereal and Sexual Diseases. By Wm. A. Hackett, M.B., Ph.G., M.C.P.S. (Ont.), Professor of Dermatology and Venereal Diseases, Michigan College of Medicine and Surgery, and N. E. Aronstam, M.D., Ph.G., Assistant in Chemistry and Clinical Dermatology, Michigan College of Medicine and Surgery. G. P. Engelhard & Co., Chicago.

This number of the "Standard Monograph Series" is a little volume of just 200 pages that contains an excellent résumé of the important subject of venereal and sexual diseases. It is written from a thoroughly practical standpoint and will doubtless appeal to the general practitioner. There is perhaps more significance given to the subject of non-specific urethritis than is usual in text-books at the present day, and perhaps the prognosis of treatment for acute gonorrhea is more hopeful and less dubious than is justified by actual experience. With regard to syphilis nothing is said of the question of the renewal of treatment occasionally even after the original two-year course of medication is passed. In general, however, the little book is a thoroughly commendable hand-book on its subjects.

The Medical News Pocket Formulary. By E. Quin Thornton, M.D., Demonstrator of Therapeutics, Pharmacy and Materia Medica in the Jefferson Medical College, Philadelphia. New (fourth) Edition. Lea Brothers & Co., Philadelphia and New York.

The Medical News pocket formulary is less bulky than formerly, more easily carried in the pocket, and yet contains quite as much material as before. Altogether there are seventeen hundred well-chosen prescriptions. A certain number of new formulæ have been added for the present edition. Among these may be mentioned the use of hydrogen peroxide in the obliteration of powder stains, the internal administration of urea in the treatment of lupus, the local application of guaiacol in promoting the absorption of serous exudates, the use of apomorphine as a sedative in alcoholic delirium, the local use of adrenalin as a hemostatic, and the use of organic compounds of silver and arsenic as substitutes for the more poisonous inorganic salts. There is evidently a well-directed effort made to keep this very practical little book thoroughly up to date.

The Practical Medicine Series of Year-Books. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery, Issued Monthly. Vol. I. General Medicine. Edited by Frank Billings, M.S., M.D., Head of Medical Department and Dean of the Faculty of Rush Medical College, Chicago, With the Collaboration of S. C. Stanton, M.D. The Year-Book Publishers, Chicago.

Notwithstanding the many quarterlies and year-books of medicine, and the present custom of the medical magazines of furnishing their readers with abstracts of current medical literature, this new set of volumes which will go handily into the pocket promises to fill a want. The present volume includes diseases of the respiratory and circulatory organs, of the blood, kidneys, bladder and ductless glands, infectious and constitutional diseases, and the subject matter is well chosen. If all leading articles had mention in such a book it would be either too large, or useless on account of two great brevity in abstracting. Therefore, the editors have chosen only articles of special value, and have made their abstracts lucid and practical enough, so that it is unnecessary for the reader to consult the original articles. There are four good plates showing the skin lesions of smallpox and chicken-pox, and a few drawings in the text.

Venereal Diseases. A Manual for Students and Practitioners. By James R. Hayden, M.D., Chief of Clinic and Instructor in Venereal and Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York. Third Edition. Lea Brothers & Co., New York and Philadelphia.

This number of Lea Brothers' series of pocket text-books is now in its third edition. This is of itself an indicaton of the fact that the book has found a place to fill and is filling it. For general practitioners no better résumé of the subject can be found in so brief a space. In the present edition new sections on venereal vegetations and on herpes progentalis have been added. This has not increased the size of the book, however, as certain merely theoretical considerations on the history of venereal diseases and the statistics of their occurrence have been omitted. The book is concise, compact, handy and as complete as can be expected under the circumstances.

Transactions of the Twenty-Third Annual Meeting of the American Laryngological Association, Held at New Haven, Conn., May 27-29, 1901. Rooney & Otten Printing Company, New York.

This, like its predecessors in the same line, is a dignified volume of transactions, admirably edited and put into the same excellent form of its companion volumes of preceding years. The articles submitted to the Association at its annual meeting are all of the same general tone of excellence. Of special interest is the historical chapter by Dr. Jonathan Wright.

The remarkable cases of empyema of the antrum of Highmore given by Dr. Emil Mayer and the splendid illustrations of his sinus cases by Dr. J. H. Bryan are of especial interest and value. The chapter on retrograde metamorphosis of the faucial tonsil is of timely interest. Other chapters of great interest and value are devoted to intubation, reflex nasal epilepsy, nasopharyngeal fibromata and the ever-timely subject of anesthesia. In all 274 pages are filled with most valuable material.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL ARTICLES.

SUTURING THE HEAD OF THE HUMERUS TO THE ACROMION IN OLD SUBCORACOID DISLOCATION.[1]

BY CARL BECK, M.D.,

OF NEW YORK.

THE patient, an engineer forty-three years of age, was run over a little more than six months ago and was treated by a druggist for contusion of the right shoulder until the early part of November. On November 9th, when I saw the patient for the first time, I found the shoulder much flattened and the acromion unduly prominent (Fig. 1). The joint-cavity was empty and the

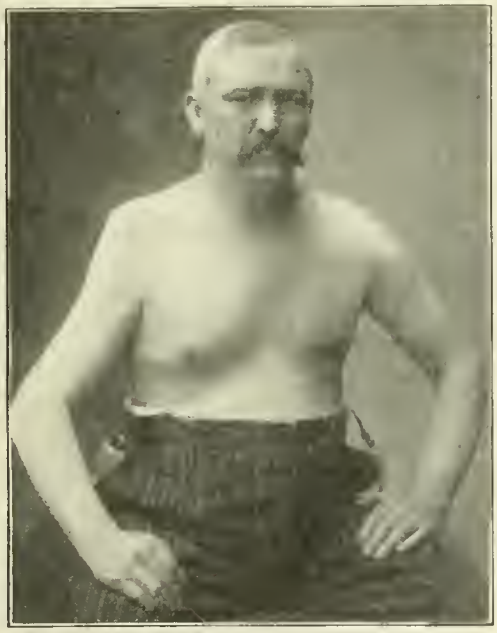

Fig. 1. Right subcoracoid dislocation.

head of the humerus could be palpated in Mohrenheim's groove. The arm was slightly shortened, the motion of the arm greatly impeded, and the patient suffered from intense periodical pain, which seemed to be dependent upon nerve-pressure.

The Roentgen rays revealed the typical signs of subcoracoid dislocation (Fig. 2). At the anterior surface of the neck of the scapula a thickened area was noticed, which made me suspect that there was a coinjury of this portion, but the skiagraph showed the bones to be intact. As the operation proved afterward, the thickened portion which might have corresponded to callus-formation was caused by the presence of frag-

Fig. 2. Subcoracoid dislocation.

ments of the glenoid capsule which had formed an irregular mass.

After various methods of reduction were tried

Fig. 3. Dislocated humerus reduced.

[1] Case presented before the Surgical Section of the Academy of Medicine, December 9, 1901.

in vain under anesthesia, a nearly semilunar incision was made which began at the acromion and running over the intertubercular sulcus was extended vertically alongside the anterior surface of the arm (Fig. 3). Thus both the joint and the acromion were exposed. After extensive and careful dissection of adhesions I succeeded in rotating the head of the humerus in its glenoid cavity. There was a pronounced tendency to forward displacement which could not be overcome by additional exposure. Therefore, I fastened the head of the humerus in the cavity by suturing it to the acromion after having drilled a hole

Fig. 4. Dislocated humerus kept in place by silver wire.

through the acromion as well as through the head of the humerus. On boring the head was found to be very soft, a fact which was also illustrated by the light shadow of the skiagraph. The skiagram (Fig. 4), taken two weeks after the operation, showed the humerus in good position. There was no reaction and the result appears to be secured. It seems to me that this procedure is far preferable to the resection of the head of the humerus, as advised by so many surgeons. No force being required, laceration of muscles, blood-vessels and nerves is easily avoided.

DIPHTHERIA; WITH SPECIAL REFERENCE TO THE SYMPTOMS AND TREATMENT.[1]

BY LAWRENCE T. ROYSTER, M.D.,
OF NORFOLK VA.;
SOMETIME INTERNE AT WILLARD PARKER HOSPITAL, NEW YORK; FORMER RESIDENT PHYSICIAN, NEW YORK INFANT ASYLUM, NEW YORK CITY AND MT., VERNON.

No one is aware, more fully than myself, of the great amount of literature on this disease which has been placed before the medical public. Many of the articles have been excellent, showing careful observation and scientific research, many more, on the other hand, have shown either knowledge born of small experience, or a total ignorance of the subject. On account of the latter I feel amply justified in offering a few thoughts suggested by a somewhat extended experience with this disease.

As my attention will be given largely to the symptoms and treatment, I will be brief in the discussion of the other phases of the subject, touching only on such points an accurate knowledge of which is necessary to a rational treatment of the disease. I will mention the pathology only incidentally.

Diphtheria is an acute, infectious and contagious disease, of which the most constant manifestation is the formation of a pseudomembranous deposit, usually on a mucous surface. There is also a toxemia accompanied by certain characteristic constitutional disturbances arising therefrom.

The etiology of diphtheria may be considered under two heads, predisposing and exciting. Under the first head, predisposing, may be placed anything which undermines the general health. Diphtheria frequently follows sore throat or exhausting diseases and conditions, being often a complication of convalescence from scarlet fever and measles. Formerly defective plumbing was considered a prominent predisposing factor. This is probably true, however, only in so far as it may cause a simple or more frequently a saprophytic angina which becomes a suitable culture-medium for the growth of the bacillus.

Naturally we find diphtheria more frequent, and in fact endemic, in closely-settled districts, but, unlike most contagious diseases, it is by no means rare in outlying and suburban localities and is sometimes found among the inhabitants of the islands of the sea. The age of selection of the germ seems to be under the tenth year, though adults are by no means exempt.

Under the second head we may place the Klebs-Loeffler bacillus as the sole exciting cause. The period of incubation is variously stated at from one to seven days. Seven days, I think, is somewhat long; one to three days being about the usual period. I know of one instance in which the incubation was less than twenty-four hours. Vomiting and convulsions, so common in the eruptive diseases, are rare, convulsions being very unusual. Even an initial chill is uncommon. There is sometimes a period of malaise, but the attention is usually called first to a difficulty in swallowing or to a pain at the angle of the jaw, or to an enlargement of the submaxillary or anterior cervical glands. The temperature ranges from 100° to 103° F., but more frequently remains nearer 100° than 103° F. The temperature is apt to be higher at first than at any other time of the disease (except in the event of complications), and, as a rule, when the patient comes under our notice the temperature is rarely over 101° F. The pulse, however, is usually very rapid from the first, showing a rapidity of absorption of toxins which is probably unequaled in any other disease. This disproportion of pulse and

[1] Read before the Norfolk (Va.) Medical Society, Nov. 12, 1901.

temperature forms one of the most valuable diagnostic features of the disease.

The most prominent local symptom, of course, is the presence of the pseudomembranous deposit, which is situated most frequently at the junction of the tonsils with the soft palate. In mild and simple cases the membrane remains in this situation, and may be so slight as to resemble strongly a follicular tonsillitis—so much so in fact that it may puzzle the most expert clinical diagnostician. The only safe method of diagnosis in such cases is the culture. Hence, the importance of an early culture in all cases in which there can possibly be any doubt. In more severe cases the membrane extends to the velum, over the whole tonsil, to the posterior pharyngeal wall, nasopharynx, nares or larynx, through the lacrymal duct to the conjunctiva of the eye. The membrane may be primary in any of these situations or may be there only by extension. The most serious localities for the formation of the membrane are the larynx, nose and eye, each of which calls for special local treatment. There is also a form of diphtheria which is characterized by a serosanguineous discharge from the nose.

I am fully aware that there is a great weight of opinion against the probability that this form is of a true diphtheritic nature. But in the light of experience with a large number of cases occurring during an epidemic, I am able to present the following evidences of its genuineness: (1) The Klebs-Loeffler bacillus (or the pseudo form or both) is always found in the discharge. (2) All the constitutional symptoms of true membranous diphtheria exist in this type. (3) It is capable of infecting others with the membranous form of the disease. (4) It is cured by antitoxin.

The odor of the breath of a patient suffering with a severe form of diphtheria is characteristic, and once smelt is never forgotten. The cervical adenitis, which is so common a symptom, rarely seen when there is a pure infection from the Klebs-Loeffler bacillius, is almost invariably seen when there is mixed infection, which is generally the rule. The enlarged glands, however, rarely suppurate.

Authorities have endeavored to distinguish between the constitutional symptoms of the pure form and those of the mixed infection, but no distinction has been made which is of diagnostic value. The mixed infections, however, are much more severe and probably play an important part in the so-called malignant cases from which arises that much dreaded condition "sepsis."

The urine frequently contains albumin, but to a much less extent than is the case in other febrile conditions, especially the eruptive fevers. Certainly I have not found it often enough to warrant its being classed as a symptom.

I mentioned the peculiar ratio between the pulse and the temperature. This is pathognomonic. A sudden change in this relation, however, portends danger. A pulse suddenly becoming slow and irregular indicates a rapidly-failing heart. Also a steady rise in temperature, which cannot otherwise be accounted for (pneumonia, etc.), usually means the setting in of the "septic condition" just mentioned and is an almost sure forerunner of death.

The more severe forms differ from the foregoing in the following particulars: There is, of course, a more extensive membrane, partly or wholly covering, as has been said, the tonsils, pharynx, nasopharynx or lining the nose. The discharge of mucus is profuse from all of these surfaces. Hemorrhage from the mucous surfaces, especially from the nose, is not uncommon and may become alarming (hemorrhagic form).

The severity of the constitutional symptoms is in direct proportion to the extent of the membrane, which may spread with exceeding rapidity, the system becoming rapidly overwhelmed by the poison until the patient is sometimes beyond hope within twenty-four hours from the first appearance of the exudate. This degree of rapidity is fortunately rare.

The symptoms, as a rule, develop gradually, progressively showing marked prostration, a rapid and feeble pulse, and usually stupor, but there may be extreme restlessness and at times even delirium. The temperature in these extreme cases is variable, ranging from normal to 105° or 106° F., sometimes in the worst cases being low and at other times high from the start. As I have mentioned before, the malignant and septic cases are usually a mixed infection with the streptococcus. In these cases it is not so uncommon to find nephritis, which, however, in itself rarely causes death.

A fatal termination of a septic case is preceded by a rapidly-failing heart and extreme prostration, neither of which improves under stimulation, disturbed respiration (aside from croup cases) and consequent cyanosis, and vomiting and diarrhea. Death from diphtheria usually results from an overcoming of the system by the toxemia (asthenia), cardiac failure, directly due to the action of the poison on the muscle (parenchymatous degeneration) and nerves (paralysis) of the heart, and from asphyxia as in croup. Of course any of the numerous complications may cause death.

Membranous Croup.—When I speak of membranous croup I refer to it only as a specific diphtheritic infection. Very rarely non-diphtheritic membranous croup has occurred, cases having been reported by several eminent and undoubted authorities. But its extreme rarity is admitted by all, hence the importance of taking no chances and of treating all cases as true diphtheria.

The development of membranous croup is usually gradual, but, unlike the spasmodic variety, steadily increases in severity. For the first day we may have little more than gradually-increasing hoarseness, the ratio between pulse and temperature not being so constant as in the other forms of the disease; but during the following twenty-four hours the breathing becomes forced, rapid and harsh, the little patient bringing into

use all the accessory muscles of respiration, the suprasternal, supraclavicular, epigastric and intercostal regions becoming depressed with each respiration; the patient becomes more and more restless until the efforts and struggles to obtain air are distressing to witness. The lips and fingers become blue, the child rapidly sinks into a half conscious condition, the violent efforts to breathe cease, the color becomes ashy, the pulse weaker and weaker, and, finally, death ensues. In the more fortunate cases under early treatment by antitoxin, these symptoms, instead of reaching the stage of unconsciousness, gradually subside in reverse order to the above. When antitoxin is not administered soon enough, relief has to be given through the use of the laryngeal tube.

By far the most frequent complication of diphtheria is bronchopneumonia, occurring in a large percentage of croup cases and especially in tracheotomy cases, thus constituting one of the chief objections to that operation. Otitis is not so frequent as in scarlet fever and measles. Pericarditis is fairly common. One of the most alarming complications and one which is sometimes very hard to control is nasal hemorrhage. Vomiting and diarrhea may be troublesome. The paralyses are the most constant of the sequelæ. The most frequent of these is the paralysis of the soft palate, causing regurgitation of food. The pharyngeal muscles are also affected, and peripheral neuritis is not at all rare in the serious cases.

Treatment.—The treatment of diphtheria may be considered under two heads, local and general. Briefly, in uncomplicated cases the local treatment consists of irrigation and the administration of antitoxin and stimulants.

Formerly, strong antiseptics, both in solution and in the form of powder, were applied to the membrane, which was then removed either mechanically or chemically. Antiseptics locally applied have been shown by careful experiments to exert their influence for so short a time as to be practically useless either in preventing the spread of the membrane or in preventing a further absorption of the toxin. In order to disinfect the membrane it would be necessary for the disinfectant to penetrate it; this it is unable to do. In order, therefore, that the disinfectant should prevent the further absorption of toxins, the membrane would have to be removed forcibly. This procedure is deemed wholly inadvisable in the light of modern scientific research, for the following reasons: The membrane is formed from within outward by a necrosis and fibrinous exudate, the direct result of the action of the bacilli, thus forming a closely-matted and tough mass of dead cells and fibrin, which acts as a barrier against the bacteria always present in the mouth. Hence, when the membrane has formed we have an intoxication only from the bacilli originally present and causing the membrane; when it is forcibly removed, however, a raw surface is left which affords a ready entrance to new bacteria and their toxins and which with the pouring out of fibrin, which at once takes place, again forms a fresh culture-medium for these bacilli and causes a new infection. On the other hand, Nature separates the membrane by forming a new mucous membrane beneath it as the body overcomes the poison, thus protecting it from a fresh infection. Then, as the false membrane peels up, it gives a direct indication of improvement and forms one of the most valuable guides to the further treatment. From this we see that the poison must be combated from within and not locally; hence the modern treatment by antitoxin and stimulation.

Nothing remains to-day of local treatment save irrigation systematically performed with hot salt solution. The object of this is two-fold: First, to remove the loose pieces of detached membrane as it exfoliates in the process of repair; second, the heat of the irrigating fluid greatly alleviates the accompanying inflammation of the pharynx and reduces the consequent swelling.

In order to irrigate, the child should be wrapped, from the shoulders down, in a sheet which is pinned closely so as to render the patient entirely helpless. The child is then placed on its back on a table, with the head turned to one side, a rubber sheet is placed around the shoulders and a Kelly pad beneath the head. The left hand of the operator is placed on the child's head in order to keep it still and the long nozzle of a fountain syringe is introduced into the mouth (along the inner surface of the jaw if necessary to open the mouth by force) and the irrigation performed intermittently. This is done in order to give the patient an opportunity to spit out the water, thus avoiding choking. The only objection that has been raised to irrigation is that it sometimes causes middle-ear disease. But of this there is no proof. In nasal cases the same method is used except that we employ the short blunt tip of the syringe. When the membrane is so large as to plug the nose we have recourse to the hand bulb syringe. The temperature of the water used should be from 110° to 130° F., depending on the local pain and swelling. In urgent cases irrigation may be employed every hour for some time, but usually three to four times a day is sufficient.

In no disease have we a more certain specific than in diphtheria. No unprejudiced observer can compare the statistics of the present day, taken at random from any large hospital, with those of the pre-antitoxin days and not be convinced of the efficacy of antitoxin. Two important factors are necessary to the successful treatment of diphtheria—an early diagnosis and a sufficiently large dose of antitoxin. The first of these must be secured by a careful watch over all sore throats and hoarse voices and an early appeal to the culture. As regards the second factor, the initial dose of antitoxin should rarely be less than 2,000 units, and in moderate cases, if there be not marked improvement within twenty-four hours, this dose may be repeated without injury. In more severe cases my initial dose is from 3,000 units in children to 4,000 or 5,000 in adults. It

has been demonstrated that antitoxin in large doses has no bad effect and it is therefore better to administer a large quantity than to hesitate through timidity and thereby attain no results. Usually the improvement begins to be manifest within thirty-six hours after the administration of the first dose. The first indication of improvement is shown in the arrest of a spreading membrane, and almost at once the edges of the exudate begin to exfoliate, the constitutional symptoms subside, the temperature, if high, drops and the patient's condition is generally improved. The pulse is somewhat slower to improve, but this improvement is gradual and steady. When the patient is specially restless morphine is the drug to be relied upon.

Stimulation, next to antitoxin, is the most important part of the treatment. Whisky I think is the best agent, certainly in the earlier stages of the disease; later, and particularly when there are paralyses, strychnine is of value. A rapid and weak, or an intermittent pulse calls for immediate action; absolute rest secured if necessary by morphine and active stimulation are required. Forced nutrition may be necessary, as the patient frequently refuses all food.

The various complications of the disease are treated as if they were primary conditions. Otitis media calls for early incision of the drum, but both this and the eye infection call for the aid of a specialist.

In the treatment of croup so much depends on the exercise of careful judgment and a wide experience with the condition that it is difficult to make any definite statement. An early diagnosis and a sufficient dose of antitoxin go a long way toward the prevention of operative interference. When the breathing becomes labored, steam inhalations may be tried. The croup-kettle is practically useless with children; in these cases a small close room, a large amount of steam and a quiet patient (morphine) are necessary to the successful employment of steam. Poultices sometimes work well, but often irritate the patient; in order that they may do any good whatever they must never be allowed to become cold. Emesis, I think, as a rule is too depressing and is seldom followed by the desired result, the expulsion of the membrane. In order that the membrane be expelled in this way, it must be loose and this naturally occurs toward the end of the attack, hence it is not practicable during the early stages. We come then to operative procedure, too often only resorted to as a last hope and for that very reason often failing to save patients in whom, had it been employed earlier, good results might have been obtained.

I shall not discuss the relative merits of the two operations, tracheotomy and intubation. Personally I prefer the latter, for there is only one condition in which the cutting operation is superior to intubation and that is when the membrane has extended lower than the intubation tube will reach, and often in these cases it has also extended beyond the reach of the tracheotomy tube.

We must be exceedingly careful and be sure that interference is absolutely necessary, for, despite the evident benefits to be derived from the procedure, it must be remembered that it also has its dangers. The presence of either tube is a source of irritation to the patient, the temperature almost always rises after its introduction, sometimes quite high, the nervous system being severely tried, and, above all, there is the ever-present danger of bronchopneumonia, but I can safely say that the frequency of this complication after intubation cannot compare with that of tracheotomy.

The color and pulse are the two best indications of the necessity for the use of the tubes. When other measures have been tried and have failed to give relief to the breathing and the pulse becomes rapid and weak, intubation should be performed immediately. If we find a patient resting apparently, but with a weak pulse, we judge that the efforts at breathing have been severe and prolonged and that the apparent rest is but exhaustion. A continued cyanosis without an indication of improvement calls for immediate relief.

In conclusion, let me say that especially in private practice it is better to insert a tube before it is actually needed than to postpone interference until the patient is beyond hope.

As a rule, a child can drink milk from a cup during the whole stay of the tube, but when this cannot be done resort may be had to the reclining posture, the head lower than the body, the child nursing from a bottle while in this position. On the whole, I think that when a patient cannot take nourishment in the ordinary way, and especially when there is regurgitation, we had better resort to gavage, the tube being passed preferably through the nose.

In post-diphtheritic paralysis, when this is general, systemic and general tonic treatment, including strychnine, which according to some exerts a specific influence, is about all that can be given. When the paralysis is limited to single muscles or groups of muscles, the faradic current is very beneficial.

ACUTE PELVIC SUPPURATION; ITS CONSERVATIVE TREATMENT.[1]

BY JOHN O. POLAK, M.D.,

OF NEW YORK;

ADJUNCT PROFESSOR OF OBSTETRICS IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL; LECTURER ON GYNECOLOGY AND OBSTETRICS IN THE LONG ISLAND COLLEGE HOSPITAL, ETC.

In discussing this subject I will confine myself to a consideration of the causation and treatment of acute suppurative processes occurring within the tubes, pelvic peritoneum and cellular tissues about the pelvis, and will attempt to show that by the early recognition and timely evacuation of septic foci the sexual organs of the woman may be functionally preserved without exposing her to the risks of a major operation. The uterus forms the main avenue for infection and

[1] Read before the Kings County Medical Association, Oct., 1901.

there are certain periods which increase its susceptibility to attack by pathogenic organisms. These periods may be classed as post-abortal, post-partal, menstrual and post-menstrual. The lymphatics form another and even more available channel for the passage of pathogenic and pyogenic cocci. Lacerations and abrasions in the utero-vaginal tract permit their entrance and when once admitted their progress is rapid.

The gonococcus, staphylococcus, streptococcus, colon bacillus and tubercle bacillus are the principal organisms which invade the pelvis. It is doubtful if suppurative peritonitis is ever caused by either the colon bacillus or the tubercle bacillus acting alone, unless there has been a primary inflammation of either the colon or the appendix accompanied by extreme distention of the bowel or a mixed infection of a tuberculous focus.

The irreparable damage which continued pelvic suppuration can inflict upon the several pelvic organs of a woman is too well known to you all to need any word picture; and yet how few appreciate the simple and effectual means that we have for the arrest of these ravages. The normal Fallopian tube is germ-free, hence, if infection occurs in the oviduct, it must be by continuity from the uterus; purulent salpingitis may rapidly follow a gonorrheal endometritis. This is the most common form of pyosalpinx. The accompanying peritonitis is secondary, from leakage through the abdominal end of the tube; this further seals the fimbriated opening and a pus tumor develops.

The staphylococcus and streptococcus are the next most frequent producers of pus-tubes by the extension of a septic endometritis and are the chief causes of peritonitic and cellular infection. The lymphatics are their channel of election through which to reach the peritoneum. Tubal tumefaction is less common in this form of infection than when the gonococcus has been the invader. Though the tuberculous germ is credited with producing 10 per cent. of tubal inflammations, the pathological changes are seldom of an acute form, rather producing a hyperplasia of the mucous and submucous structures than the formation of pus accumulations.

It would seem, therefore, from the foregoing statements that all of these germs, with the exception of the tubercle bacillus and the colon bacillus, are capable of establishing an acute primary infection, passing rapidly along the uterus and tubes or through the pelvic lymphatics to the peritoneum. When primary the degree of peritonitis will correspond to the number of lymphatics which are involved. While the puerperal state exaggerates the virulency of streptococcic infection, the pregnant state after the third month seems to afford an immunity from the gonococcus. Also it must be noted that peritonitis of a gonorrheal origin is apt to occur at the menstrual period, and acute exacerbations in the course of a chronic gonococcic process are not uncommon at this time. In streptococcic infection the lymphatic invasion is so rapid that the formation of local foci will be found of rare occurrence; a general toxemia of more or less severity speedily supervenes. A general recognition of this fact will emphasize the necessity for prompt drainage.

The symptomatology and physical signs, together with an accurate history, will help to differentiate the local conditions. Clinically in pelvic suppuration the lines are not so sharply drawn as the books would lead us to suppose, owing to the rapidity with which neighboring structures are involved, making visceral isolation difficult. A history of abortion, labor, arrested menstruation, intra-uterine instrumentation or gonorrheal exposure, followed by pelvic or abdominal pain, fever, chilliness, anorexia, constipation or diarrhea and accompanied by a vaginal discharge of a purulent, sanguineous or a sanguino-purulent character, should call for prompt and careful pelvic exploration to determine the seat of attack. This examination should be abdominal, vagino-abdominal and recto-abdominal in the order named. Such a system adopted as routine will seldom fail to locate the septic focus. When, however, the infiltration is so extensive as to make visceral isolation impossible, vaginal incision and intra-pelvic exploration with the finger, when done aseptically and as a preliminary to subsequent operation, will obviate all possible error in diagnosis and guide the surgeon in his plan of procedure.

The pus focus may be found in the broad ligament, in the tube, in the ovary, in the pelvic peritoneum, safely walled off by exudate, or free in the peritoneal sac. The physical signs in the individual case will depend on the location and the character of the accumulation, *i.e.*, whether it be lymph, pus, or serum. The degree of general toxemia will also be largely governed by the nature of the infecting agent, thus widening the range of symptoms.

In acute salpingitis which has reached the form of a pyosalpinx, the uterus may be found more or less fixed on the affected side and displaced toward the opposite pelvic wall. A hard or fluctuating mass will be felt on vagino-abdominal palpation. This tumor may be in the cul-de-sac or high up near the pelvic brim. Whether the pus-tube can be isolated or not will depend upon the degree and the extent of the pelvic peritonitis in the particular case. The distended tube is usually closely matted to the posterior and lateral wall of the uterus. The disease is often bilateral; this is particularly true of infections of a gonococcic origin; again, it is not unusual to find a tubal abscess on one side and a purulent salpingitis on the other.

The differentiation between an acute ovarian abscess and a pus-tube is difficult. It is the writer's belief that such a diagnosis cannot be positively made until the cul-de-sac is opened; even then the two conditions so frequently co-exist and are so commonly involved in the same mass of exudate that isolation may be impossible. An

ovarian abscess is usually firmer and more rounded than a pus-tube, and commonly develops on one side only.

Tuberculous pyosalpinx cannot be diagnosticated macroscopically unless the tubercles can be seen or felt on the surface of the distended tube.

Streptococcic infection of the pelvic peritoneum is characterized by its rapidity, its marked general toxemia, and the almost constant absence of local findings. The pelvis is rapidly filled by fluid made up of straw-colored serum, pus-cells, blood-cells and lymph-flakes. Masses of lymph are uncommon. These points must be constantly borne in mind, as the tactile appreciation of free fluid in the cul-de-sac unless it be present in considerable quantity, presents difficulties which tax even the diagnostic acumen of the most skilled pelvic surgeon.

Masses of lymph surrounding and fixing the uterus, stiffening the broad ligaments, producing distention or stricture of the rectum and inhibiting the muscular action of the bladder, suggest staphylococcic or colon bacillic infection. Such lymph effusions resolve spontaneously, unless disorganized or infected by interference, and make up that class of non-operative cases referred to by Clarke in his excellent paper on the treatment of pelvic peritonitis.

Phlegmon occurring within the folds of the broad ligament invariably follows labor or abortion. The condition begins as a lymphangitis and cellulitis and ends in either resolution or suppuration. If it terminate in resolution, a thickened broad ligament is its only monument. On the other hand, if a phelgmon occur it may separate the folds of the broad ligament and bulge posteriorly lifting up and displacing the uterus laterally or forward toward the opposite pelvic wall. The diagnosis is comparatively easy when the condition is seen early or fluctuation may be elicited, while later the tumor may so fill the pelvis or become bilateral and so displace the pelvic contents that the seat of original infection may be lost sight of.

Fever, tympanites, pain, tenderness, an accellerated pulse-rate, and more or less toxemia are common to all of these infections. Of course the severity of these symptoms will differ in the individual case.

Treatment.—In order to establish a rational and scientific treatment in pelvic inflammation, two general classes must be appreciated, i.e., cellulitic and peritonitic lymph-effusions, and, second, pus accumulations in the tubes, broad ligaments, ovaries and pelvic peritoneum. In the first class, the general symptoms may be so mild that absolute rest in bed, light catharsis, rectal irrigation and the application of ice or poultice over the seat of pain will usually cause spontaneous resolution and gradual absorption of the exudate. It has been my fortune to open the abdomen for other conditions six months or a year after such an attack of pelvic inflammation, and to find little or no evidence of previous inflammatory trouble. I have been particularly impressed with the absence of visceral and parietal adhesions, showing that Nature undisturbed is often capable of fully re-establishing visceral mobility.

In the second class, which includes streptococcic infection without local foci, and mixed infections with pus accumulations, vaginal incision and drainage will afford the greatest protection against general intoxication. The French were wont to do this by panhysterectomy and drainage through the vaginal vault, but the writer has always claimed that the shock of a major operation in the presence of acute sepsis, no matter how rapidly or skilfully it may be done, more than counterbalances the advantage gained from the drainage secured.

Only a few years ago all pus-tubes were subjected to ablation by celiotomy. It was almost universally advocated that in the presence of a pus-tube on one side a double salpingectomy should be made. This practice had a reasonable basis, for, as we have already shown, tubal infection is commonly but an extension of an inflammation from within the uterus. Reasoning in this line the panhysterectomists said, if we are to take out both tubes, why leave an infected uterus to keep our patients from a complete cure? The advantage of vaginal drainage was also gained by this radicalism. Fortunately for woman the pendulum has swung from such mutilation toward scientific conservatism.

In acute pus collections, whether they be in the tube, ovary, or in the pelvic peritoneum, vaginal section and drainage will meet the indication and often conserve a set of pelvic organs which are capable of performing their functions with little or no pain. A further advantage is that the operation is rapid and produces little or no shock. I also claim that any intelligent practitioner who has perfected an aseptic technic may open the posterior cul-de-sac, separate fresh adhesions and drain pus cavities without being dependent upon the nearness of the gynecological surgeon.

By this procedure patients who are acutely septic are saved weeks of suffering and the prognosis is materially bettered. Later it may be necessary to have a more radical operation performed that a complete symptomatic cure may be attained, but in the vast majority of cases vaginal section and drainage when done early are truly life-saving and conservative in their results. Posterior section and drainage or some modification of that operation may be applied to almost every form of acute pelvic infection, including pyosalpinx, tubo-ovarian abscess, purulent peritonitis, parametritis, abscess and pus collections within the broad ligament.

A description of the method as applied to acute pus-tubes will serve as an illustration. The vulva and vagina are carefully sterilized and the uterus curetted; the posterior lip of the cervix is then siezed with a volsellum and pulled downward and forward, while a weighted speculum retracts the perineum and exposes the posterior utero-vaginal

junction; the mucous membrane of the vagina is incised transversely at this point (the incision is similar to the posterior incision for vaginal hysterectomy); the scissors are then replaced by the finger and the tissues peeled up from the back of the uterus; keeping in the median line until the peritoneum is exposed, the finger is pushed through the peritoneum into the pelvis and the opening enlarged by introducing the two index fingers into the cul-de-sac and spreading them apart. The perineal retractor is then withdrawn and the two fingers within the pelvis free all adhesions within reach, separating the tube and ovary of each side until they can be delivered into the vaginal wound for inspection. All who have done this work will acknowledge the facility with which adhesions are freed from below. With but little difficulty the adnexa can be brought successively into view, and, by the use of the Pryor position and trowel retractors, the whole pelvis may be inspected through the vaginal wound. If a pus-tube be present the following plan has been eminently satisfactory in my hands: After freeing the tumor from all adhesions, a sponge with a tape attached is passed into the pelvis; the distended tube is brought into the vagina and incised along its dorsum, beginning at the fimbriated end and running in for an inch or more; this empties the tumor of pus, which is washed away with saline irrigation. The tube is sponged dry and a fine probe carefully passed along its course into the uterus, thus determining its patency. The muscosa is sutured to the peritoneal coat with fine catgut. It may be necessary to repeat the procedure on the other side. I do the same operation in the presence of gonorrheal salpingitis, even when no tumefaction is present. Every adhesion must be freed before the final toilet is begun. The pelvis is sponged dry and a strip of iodoform gauze is tightly packed in each tube. The tubes are then replaced and the pelvis is loosely filled with strips of gauze or a Mikulicz bag with the adnexa lying above the drains. In this way the pelvis and uterus are isolated from the general peritoneal cavity and the lymphatics, the mouths of which were opened by separating the adhesions, pour out their fluids upon this mass of gauze. Thorough drainage is thus secured. I have found it to be an advantage to have the ends of the drainage gauze come out of the vagina and lie in a mass of dry sterile gauze. This should be frequently changed. The drainage gauze is withdrawn after five or six days. On the third day begin loosening it by pulling out a few inches. When once removed I have never found it necessary to replace it. *No irrigation of the pelvic cavity during operation or following the removal of the gauze is admissible.* The walled-off cavity will drain itself by gravity; this may be favored by urging the patient, when her condition permits, to assume the semi-recumbent posture.

In tubo-ovarian abscess incision and drainage are often palliative rather than curative; they arrest the sepsis, leave a functionating ovary which unfortunately may have too much cicatricial tissue in it, and produce such dysmenorrhea as to necessitate subsequent ablation. In the few cases that I have seen early, five in all, three have become pregnant since the operation, while the other two have had the adnexa removed for menstrual and intermenstrual pain. I have been impressed by several points which would justify the incision and drainage of every tubo-ovarian or ovarian abscess, *i.e.*, the subsequent operation has been much easier than in similar conditions which have not been previously emptied through the vagina; the patient was in better condition, the adhesions were more easily separated and the convalescence was smoother.

It is in pelvic peritonitis that vaginal incision and drainage have their widest field of application, for by these measures we are able to drain the lymphatics as they pour out their infecting organisms and isolate the pelvis from the general peritoneal sac. Even in purulent peritonitis early section in conjunction with the semi-recumbent posture may save our patient. When the toxemic symptoms have not improved twenty-four hours after curettage and irrigation my rule has been to open the cul-de-sac, free all adhesions, and drain with the patient's shoulders raised from eighteen to twenty inches. I have yet to see the case in which hysterectomy is justifiable when this simple procedure has been properly done.

In conclusion I wish to make the following statements and claims:

1. Early diagnosis in pelvic suppuration is imperative.
2. When the diagnosis is made, operate.
3. The vaginal operation is the one of choice.
4. When it is done early with strict asepsis it is curative and may preserve the function of the woman's organs.
5. It improves the patient's condition, makes subsequent operation easy, prevents rather than causes adhesions.
6. It may be used for diagnosis in obscure cases without shock or injury to the patient (if aseptically performed).

Finally, this operation may be applied to every acute suppurative condition within the pelvis.

VENTROFIXATION: A SUGGESTION.

BY VICTOR C. PEDERSEN, A.M., M.D.,
OF CORNING, N. Y.

One of the objections against ventrofixation as proposed by Professor Kelly is that the incision passes directly through the linea alba. Although the opening into the abdomen may be very small, it is, nevertheless, direct in its passage through this tendinous structure, which, like similar tissue everywhere in the body, is known to heal more or less unfavorably for strain, even when the union is primary. On the principle of Professor McBurney's intramuscular method of opening the abdomen for appendectomy, two ventrofixations were recently done by me in the

Corning Hospital on much the same plan. The principle is certainly not a new one and no claim to originality therein is made; but it seems desirable to describe the method and its results up to the present time merely as a suggestion. A similar procedure has probably not been described in medical literature, although the best journals on surgery and gynecology in French, German and English, and most of the really good works on these subjects have been searched for it.

The details are these: (1) Exposure of the sheath of the rectus through a median cutaneous incision two or three inches long; (2) strong retraction of the skin to one or the other side; (3) opening the sheath of the rectus about three-quarters of an inch from the median line; (4) liberal loosening of the rectus from its sheath and retraction of it as far outward as possible; (5) opening of the peritoneal cavity; (6) loosening of the peritoneum behind the linea alba; (7) search for large vessels at this point; (8) passage of the sutures as follows: The median edge of the peritoneal wound is seized with forceps and the needle is introduced half an inch away from the middle line; it is next carried through the uterus, emerging beyond the median line on the opposite side; it is then passed forward through the peritoneum, previously loosened as described, and then through the linea alba sufficiently deep to secure a firm hold; the two ends are then seized in an artery clamp; the other suture is passed in the same way and both are tied, so that the knot is extraperitoneal; (9) suture of the peritoneum; (10) restoration of the rectus to its sheath; (11) ordinary layer sutures close the rest of the wound.

The result of this operation is that the uterus is suspended in the median line, as in Kelly's original operation, while the scar is lateral to the point of fixation and is itself protected by the healthy rectus muscle, being "staggered."

In closing the sheath of the rectus mattress sutures were used, so arranged that they did not pull on a single bundle, but on many bundles of fibers. This was accomplished by passing the needle near the edge on the right side of the wound and emerging quite far from the edge on the left side. Then on the left side it again pierced the fascia near the edge and emerged on the right side far from the edge. When these stitches were tied this arrangement gave perfectly uniform apposition and the advantage of there not being any likelihood of their cutting through at the least strain.

Another detail which seemed very advantageous was the insertion of a retention catheter into the bladder before the uterus was suspended. With the aid of the catheter it is possible to inject into the bladder from six to ten ounces of sterile salt solution. In this manner the best place for fixing the uterus is clearly indicated, because, if the vagina is long and lax enough, the filling of the bladder can be increased and the uterus still suspended a little above it. By this process of measuring it is hoped that the bad after-effects of the operation, that is, pressure by the uterus upon the bladder for the first few months, as Kelly himself admits, will be avoided. It is perhaps suggestive that neither of my cases has suffered at all in this way up to the present time. The first woman was operated on for pronounced retroversion with adhesions, and the second for extreme pathological anteversion. Both suffered from obstipation and from frequent urination. The second patient had to empty her bladder night and day about every three hours. Since the operation she has been passing her urine about five times in twenty-four hours, which is a new experience for her after many years of great discomfort. It was felt that doing a ventrofixation for anteversion might be regarded as hardly warranted, but the symptoms were such as to make me believe that only a lifting of the uterus away from both bladder and rectum would avail. As the woman desired to have children, if possible, no other operation could be contemplated except ventrofixation. The results up to the present time have proved this judgment to have been entirely correct.

A CASE OF LEUCEMIA, PRECEDED BY MUCO-SANGUINOLENT COLITIS AND PHYSIOLOGICAL LEUCOCYTOSIS.[1]

BY G. W. M'CASKEY, A.M., M.D.,
OF FORT WAYNE, IND.;
PROFESSOR OF CLINICAL MEDICINE AND NERVOUS DISEASES, FORT WAYNE COLLEGE OF MEDICINE.

The whole question of the etiological rôle of toxemiæ of intestinal origin is involved and obscure, although its importance cannot, in my opinion, be doubted. In dilating so largely upon this subject, in the report of a single case, it is largely for the purpose of indicating what appears to me to be its broad relations to clinical medicine in general, and especially to chronic intestinal diseases. So far as the etiology of leucemia in general is concerned, and of this case in particular, the sequence of carefully observed facts is presented as a contribution to a very difficult, and still unsolved problem, which will require for its ultimate solution, if indeed it is ever to be solved at all, a more extended view-point than is at present accessible. The following is the report of the case:

L. D., age twenty-three years, school teacher. The patient had never been of rugged appearance, indeed, quite the contrary, although capable of enduring a great deal. There was a history of post-scarlatinal dropsy at three years of age, and several attacks of "bloody flux" at ten. History otherwise not noteworthy. The patient was first seen by me in winter of 1897 at which time he was suffering from a moderately severe grade of secondary anemia, apparently the result of overwork and an intense chronic colitis of one or two years' duration, accompanied by frequent dis-

[1] Read before the Kankakee Valley Medical Association, Plymouth, Ind., October, 1901.

charge of mucus and blood. These symptoms had existed for several months. At that time the red cells were 3,500,000, hemoglobin 65 per cent., with a leucocytosis of about 14,000. Stained slides showed the leucocytosis to be strictly physiological in type, the differential count revealing the proper proportion of neutrophiles, and large and small lymphocytes, no mention being made of the number of eosinophiles; but it is certain that no abnormal forms of leucocytes were present, such as the myelocytes which appeared in such large numbers later. I saw the patient, who lived some twenty miles from my office, only a few times when he disappeared from view.

He again reappeared March 30, 1899, with a history of progressive deterioration of health, the symptoms being much the same in character as when first seen. For some months the diarrhea had been persistent, and controlled with difficulty, but was the greater part of the time of a thin, watery character, and at that time rarely contained blood. He had to take opiates constantly in order to control the diarrhea so that he could sleep. The spleen was remarkably enlarged, extending down within about two inches of the pubis, and to within two or three inches of the right anterior superior iliac spine. Its consistence was firm and its extensive outline irregular and notched. The liver was also greatly enlarged. Stomach examination showed entire absence of free hydrochloric acid, with perfect starch digestion, but very faint biuret reaction. There was no lactic acid, and the total acidity was very low—10°. The fasting stomach contained the usual detritus of chronic gastritis, the quantity of mucus in both the fasting stomach and gastric juice being large. Microscopical examination of the dejecta revealed a morbidly intense bacterial growth, with many protozoa, and large quantities of epithelial cells and mucus. The filtered aqueous infusion of alvine discharges was shown by the spectroscope to contain unaltered bile, which with bile stained microscopical flocculi of mucus established the diagnosis of a catarrhal lesion of small as well as large intestine. The acrid alvine discharges, together with the local infection, had developed and maintained a severe proctitis which was a source of great suffering.

The analysis of urine gave the following result: Total quantity in twenty-four hours, 1,600 c.c. (about 1½ qts.); specific gravity, 1,020; total solids, 74.56 grams; urea, 3 per cent. or 48 grams; uric acid, 1.8 grams; no albumin, sugar, indican, phenol, nor diacetic acid.

Notwithstanding the absence of an excess of both indican and phenol the ethereal sulphates, estimated by the method which I published in the *Journal of the American Medical Association*,[1] were greatly increased. The simple or fixed sulphates were 2.3, the ethereal sulphates .9, estimated as SO_3. This was in proportion of 2.8 to 10 instead of 1 to 10 as in health.

[1] Jour. Amer. Med. Assoc., March 31, 1900

The blood examination furnished the key to the case. The blood was found to be of a peculiar, opalescent hue and exceedingly thin. There was scarcely any pretense at coagulation, the drop remaining fluid on the finger until it thickened by evaporation, with the ultimate formation of a loose coagulum.

The hematocrit showed about 40 per cent. red cells, indicating about 4,000,000 per c.mm.; this however was found to be somewhat in excess of the figures obtained by the Thoma-Zeiss apparatus. The discrepancy did not lie in the size of the red cells, which were of about average size, but, as shown by a microscopical examination of the red column, was due to a large admixture of white cells, which does not occur in centrifugated normal blood. It appears to me that there is only one probable explanation of this phenomenon, and that is the greater specific gravity of the leucocytes in leucemic blood and especially of the myelocytes. This is an observation of some scientific interest which I do not remember seeing recorded before. The rouleaux formation varied greatly. It was sometimes normal and at others very feeble. The hemoglobin was reduced to about 50 per cent. of the normal, showing a greatly diminished color-index. The chief interest, of course, centered in the study of the dried and stained slide. It was typical of splenic medullary leucemia. The red cells presented nothing especially noteworthy, excepting pallor, an occasional normoblast, and the polychromatophilic degeneration of Ehrlich. With regard to the white cells, however, the properly stained slide showed a large number of myelocytes—that form of cell which is highly characteristic but not pathognomonic of lieno-medullary leucemia. This cell resembles the neutrophile in having the neutrophile granules, and the lymphocyte in presenting a spherical, ovoid, or some other form of nucleus, without divisions, and very large in proportion to the containing cell. The nucleus stains with variable intensity, and the granules may be eosinophilic instead of neutrophile. The myelocytes vary greatly in size, some of them being very large. The largest one that I found among many measurements in this case was about 20 μ

While, as I stated, the mere presence of myelocytes is not pathognomonic of leucemia, their presence in large numbers is absolutely so. If they form 10 or 15 per cent. of the total number of leucocytes, the diagnosis of leucemia may be positively made from this fact alone. The percentage is generally much larger than this. In this case, for instance, one of many differential counts gave the following result in a count of 515 leucocytes: Polymorphonuclear neutrophiles, 180 or 35 per cent.; simple myelocytes, 162 or 31 per cent.; eosinophile myelocytes, including all those in which there was a distinct tendency toward the acidophile staining of granules, 51 or 10 per cent.; total myelocytes, 213 or 41 per cent.; large lymphocytes, 43 or 8 per cent.; small lymphocytes, 65 or 12 per cent.; ordinary eosinophiles, 2 or .2 per cent. At this particular time

the white-cell count was 277,200 per c.mm. Estimating the number of different kinds of white cells per c.mm. present at this time, we have, in round numbers: Polymorphonuclear neutrophiles, 97,000; simple myelocytes, 85,900; eosinophilic myelocytes, 27,700; total myelocytes, 113,600; large lymphocytes, 20,000; small lymphocytes, 33,000.

The patient's general condition was very bad. He looked pale and anxious, and was emaciated to a considerable degree. He was under my observation, either directly, or as a consultant, for a year and a quarter up to the time of his death. It would not be justifiable to present the detailed history of the case during this time, with a full discussion of the treatment. Arsenic, the various preparations of iron, bone-marrow and thyroid extract were among the remedies exploited in the case. While there were periods of improvement, the general tendency was downward, the latter tendency being often accentuated by indiscretions on the part of the patient, whose endurance, as usual in such cases, was severely tested. The most important measures of treatment were those directed toward the gastro-intestinal disease, which certainly preceded, by a considerable time the hemic changes of leucemia. The gastritis was treated by local measures, lavage, intragastric faradization, etc., with marked improvement of the digestive function. This I consider a proper procedure in any case of chronic nutritional disease, without any regard to the real pathology of the case in its relation to the gastric disease.

The determining question from a therapeutic point of view, in my opinion, is, Have we to deal with a stomach lesion which is, under the circumstances, amenable to such treatment, with a probability of improving the condition of the patient to a noteworthy degree? In such a case as this the only hope of greatly prolonging life is to improve the general nutrition, and the primary digestion is fundamental in this regard. In this case the improvement in digestion was followed at times by so marked an improvement in the general condition, as to lead to the hope of a long stationary period. I feel confident that such a result might have been attained, but for the unfortunate intestinal lesion, which has very much the appearance of being the principal etiological factor in the case, but in any event was so severe as to baffle all attempts at its removal. This was due, doubtless, quite as much to the bad state of general condition as to lead to the hope of a long lesion itself. It was this apparently, more than anything else, with its incessant pain and exhaustion which dragged him down to death.

The nature of this lesion has already been indicated. Its treatment cannot be described in detail. As already stated, opium in varying dosage had to be called into almost constant requisition. It was used, however, to the least extent compatible with the reasonable relief of the severe symptoms, and was constantly supported, and sometimes supplanted by other measures. Locally the colitis was treated by silver salts, including protargol, boric acid, and various other antiseptics. Suppositories of lead, opium, belladonna, etc., were frequently resorted to. Internally eosot and subgallate of bismuth were principally relied upon.

Only a small contingent of the remedial agents and measures utilized in the case can or need be referred to here. As already stated the general tendency was downward, and death from asthenia resulted June 10, 1900, fifteen months after the diagnosis of leucemia had been made.

The autopsy included a careful examination of the abdominal and thoracic viscera only, the bone-marrow not being examined. The spleen was greatly enlarged, weighing three and one-half pounds, and very fragile in consistence. The liver weighed about five pounds, and was distinctly indurated. The colon showed evidences of the intense inflammatory action of which it had been the seat. There were numerous deep abrasions, some of which could be properly classified as superficial ulcerative processes. The small intestine was normal macroscopically. The only noteworthy thing about the heart was the presence of the soft white coagula described by Virchow and which were found to be composed principally of leucocytes.

There are several points in this case which appear worthy of record and discussion. The most important one, I think, is the existence of chronic colitis of long standing, associated perhaps the greater part of the time with a catarrhal condition of the small intestine; this, taken in connection with the physiological leucocytosis definitely recognized before the appearance of myelocytes, raises a very interesting question of etiology. The belief that intestinal disease may bear a causative relationship to leucemia is not new, although perhaps it has rarely happened that the order of events has been so definitely established as in this case. Saunby has recently reported in the *British Medical Journal* a case with ulcers. How soon after my first observation of this case myelocytes appeared in the blood, and especially in sufficient numbers to establish the diagnosis of leucemia, is, unfortunately, a matter of conjecture only, as no scientific study of the blood was made in the interval.

The sequence of chronic colitis and leucemia being established in this case, the relationship of the latter to the former—whether a result or an independent development—is a question of deep interest. Owing to the very unsatisfactory state of our knowledge of the pathology of leucemia, it is difficult, if not impossible, to discuss clearly this question along definite lines. There are, however, certain considerations of a general character which appear to me well worthy of attention.

The state of general and local nutrition, incident to such a case of chronic colitis as the one reported, must obviously be very bad. The colon is of course the seat of a chronic infection which is associated, necessarily, with the formation of relatively large quantities of toxic substances of

various kinds, the precise nature of which we cannot determine. Owing to the lowered antitoxic coefficient of the liver, the absorption of these products into the portal circulation is followed by their entrance into the systemic circulation to a great extent unchanged in form. The liver is, owing to its physiologico-anatomical relationship, the first structure to suffer from the absorption of toxic material from the alimentary canal, and, just in proportion as its functional integrity is impaired, do the structures which it is designed to protect suffer in consequence.

It is not necessary to regard leucemia as a pure infection in order to perceive the possible causative relationship of an intestinal infection. The sharp distinction between lymphatic and myelogenous leucemia can scarcely be maintained in the light of recently reported facts. Cases with a preponderance of large mononuclear cells have been observed with extensive involvement of lymphatic structure, while Widal and Muklen have recently reported a case in which the picture was that of a pure lymphatic leucemia, while the bone-marrow was found at autopsy to be composed of a tissue containing nothing but lymphocytes. Admitting that leucemia is a primary disease of the bone-marrow, the operation of an exciting cause can still be rationally assumed, and sought for. This is precisely the rôle that I would assign in the existing state of our knowledge to such conditions as anteceded the development of the leucemia in the case here reported. From this point of view something more than the toxemia and malnutrition of intestinal origin is necessary for the production of the leucemia. Just what that "something" is cannot be readily defined. It may be spoken of as a special vulnerability—a peculiar tendency to take on degenerative changes of the embryonic type—on the part of the tissue under consideration. If this explanation is unsatisfactory it is no more so than the explanation given of the frequently observed fact of large families being swept away at about a certain age with pulmonary tuberculosis. The practical fact is, dress it in whatever terms one chooses, that there are morbific tendencies in certain families and individuals, which render destructive agents operative in the production of certain results. Yet these tendencies, without the exciting causes, would scarcely, if ever, give rise to any particular disease, and, of course, in the case of specific infections like tuberculosis, could not do so under any circumstances, although it is quite conceivable that such results might follow in diseases like leucemia, in which the principal factor may possible be the degenerative tendency to which reference has been made.

While the clinical picture of leucemia impresses me as it has many others, as having many of the features of a general infection, yet I do not for a moment believe there is available evidence for assuming the existence of a specific infection in the ordinary sense of the term; nor is it necessary to do this in order to assign an important rôle to the general infections of varied and indefinite character which arise from the various mucous surfaces of the body and especially from the gastro-intestinal tract. From this point of view the results of a general infection of the character referred to will depend very largely upon what may be termed the personal equation of the individual, and to go a step further, the resistive power and functional integrity of the organs and structures of the individual. This is, perhaps, equally true of the specific infections, the only difference being that their effects are not so variable—it is usually either a definite clinical picture or it is nothing.

107 W. Main Street.

MEDICAL PROGRESS.

EYE, EAR, NOSE, AND THROAT.

The Epipharyngeal Tonsil.—In an article on the nature and histopathology of this structure, N. H. Pierce (Jour. Amer. Med. Assoc., Jan. 4, 1902) submits the following conclusions: (1) The tissue composing adenoids has a wide distribution throughout the body, especially abundant in the pharynx and in the ileocecal region of the intestinal canal, also in the conjunctiva, tear-ducts, genital mucosa, larynx. (2) The epipharyngeal tonsil is normally present in all individuals. (3) Its function is at present unknown. Whether it is simply an evolutionary vestige or has to do with metabolic processes is uncertain. (4) It probably belongs to the class of glands having an internal secretion. (5) The relation of tuberculosis, syphilis, or scrofulosis to adenoids is not etiological.

Ulcer of the Cornea.—Progressive ulcers anywhere on the eye are dangerous and at no point are they more threatening than on the cornea. A. M. Ramsey (Med. Press & Circ., Dec. 18, 1901) recommends the following treatment for traumatic serpiginous ulcer of the cornea: Rest by keeping the patient in a dark room, protection from further injury, and the relief of pain are the first three indications. The patient should be kept in bed in a dark room with the eyelids closed by a bandage. In order that the bandage may be laid smoothly and not exert an uneven pressure a carefully-fitted pad of cotton which fills up the hollows of the eye should first be applied. A poorly-fitting bandage is worse than useless. Discharge from the lacrymal sac must be arrested and the tear-passages kept cleansed. Atropine is the best drug for the iritis which always complicates this form of ulcer. It soothes the nerves, diminishes congestion, dilates the pupil, paralyzes the ciliary muscle and insures rest for the eye. Its effect upon the pupil is a guide to prognosis; the more quickly the iris responds, the more favorable will be the course of the disease. Leeches over the temple decrease congestion and pain. Free bleeding always does good. When the ulcer is about to perforate, eserine should be substituted for the atropine. This drug has a more limited use. In this condition and almost invariably the atropine should be preferred in a solution of one to two per cent. until the very last stages. Moist heat may be applied to the temples and face to relieve congestion and reduce intra-ocular tension. Further progress of the ulcer demands disinfection of its surface. Nothing is better than the application of hot saturated solution of boric acid continued until all discharge has been washed away; then a powder of equal parts of iodoform and boric acid very finely triturated should be dusted freely on its surface. Other disinfectants are a collyrium of chino-

sol, one part in four thousand, and protargol, five parts in one hundred. The injection of mercurial salts beneath the conjunctiva is to be deprecated. Constitutional treatment is always necessary and is carried out by good food, alcoholic stimulants, quinine in full doses, and morphine according to indications. If the ulcer be still progressive, surgical measures may become necessary. A bold incision of the cornea through the ulcer into sound tissue is recommended on the authority of Saemisch of Bonn; this is, in short, the same treatment as for an abscess elsewhere. The hypopyon is evacuated by this method and then drained by keeping the wound open. Care must be taken to avoid a prolapse of the iris, which almost certainly follows in many cases. Another operation available is to destroy the edge of the ulcer. For this purpose an alkaline solution of fluoroscin is dropped into the eye, which makes the margin of the ulcer a bright green. A fine platinum cautery at dull red heat is then applied to the cornea in healthy tissue just beyond this green line. The burning is continued until all of the infiltrated margin is destroyed. The healing of the ulcer will be promoted by the reduction of intra-ocular tension. The cornea should be incised at its outer aspect and the anterior chamber of the eye slowly emptied. Congestion and hemorrhage within and displacement and partial prolapse of the iris accompanied by great pain often follow this procedure. Hot poultices will usually control these symptoms. If the destruction of the ulcer with the cautery be well done, the healing process is rapid and the scar is comparatively slight, considering the dreadful type of the ulcer.

Haab's Magnet for the Extraction of Foreign Bodies from the Eye.—From a study of nine cases in which this instrument has given favorable results, W. T. H. Spicer and A. F. Maccallan (Brit. Med. Jour., Jan. 18, 1902) reach the following conclusions: (1) When the patient is brought up to the magnet, it is the rule for severe pain to be experienced by him if a magnetizable particle is present in the globe. Haab's magnet is therefore of valuable diagnostic service in determining the presence or absence of such a particle. (2) Localization by the X-rays is extremely important. By their means it is possible sometimes to avoid injury to a clear lens in the extraction of a foreign body and entanglement of the iris can be avoided if its precise situation be known. (3) If there be a recent wound we attempt to remove the foreign body through it, using Haab's magnet alone. If this wound has firmly healed, it is necessary to make an opening for its exit. This may be either corneal, in which case the foreign body is withdrawn by Haab's magnet, or peripheral, in which case the small magnet for the removal of the foreign body from the anterior chamber, after it has been brought forward by Haab's magnet, is usually employed. (4) In all cases it is most essential that entanglement of the particle in the iris and ciliary body should be avoided. By gradually bringing the patient from a distance up to the magnet and by increasing slowly the strength of the current up to the maximum, this is to a certain extent guarded against. The idea is to prevent the particle from rushing forward from its posterior position and burying itself in the iris.

Sympathicectomy in Optic Atrophy.—Many cases of simple glaucoma have been so markedly benefited by the excision of the sympathetic ganglia that this operation has been suggested for the relief of other conditions when vascular changes were necessary: The reduction of tension which follows sympathicectomy in eyes with normal as well as in those with increased tension, lessens the pressure on the intra-ocular portion of the optic nerve. Then the vaso-dilating effect of section of the sympathetic nerve increases the blood-supply of the nerve, both of the intra-ocular portion and the orbital. This healthful artificial arterial hyperemia promotes a regeneration of the nerve elements and a resulting restoration toward the normal state, with a conseqent increase of its function, vision. Nitrogylcerin has been found to do the same thing, but its effects are more temporary. E. C. Renaud (St. Louis Med. Rev., Feb. 1, 1902) has operated on these cases of simple nerve atrophy, founding his indications upon the above well-known principles. In the first case a unilateral operation was done and the improvement in vision was only slight. In the last two excision was done on both sides and the results were much better. In glaucoma also operations seem to be necessary on both sides in order that the best results may be obtained, probably on account of the intimate relations of the sympathetic systems at the base of the skull. In the third case vision has improved from 10-200 to 20-50 and this seems to have been permanent. He believes that the incision behind the sternomastoid muscle is preferable to the one in front of it on account of the ease with which the internal carotid artery and jugular vein are gotten out of the way. Furthermore the field of operation is larger. He recommends tearing the ganglion out rather than cutting it, for by the latter method parts of the ganglion must be left and may continue to exert their influence.

Rhinopharyngeal Origin of Goiter.—In no case of goiter has Dr. Hamon du Fougeray of Mans (Rev. Hebdom de Laryn., Rhin. et Otol., No. 1, 1902, p. 20) found rhinopharyngitis absent. Treatment of the latter has improved all of his 209 cases and cured many. Exophthalmic goiter has also been helped. His theory is that congestion of the thyroid gland is produced by reflux of blood from the pharyngeal into the thyroid veins. He sums up as follows: (1) Vascular lesions of the oropharynx cause simple goiter of the cavum and of the nose, exophthalmos; of both nose and pharynx, exophthalmic goiter. (2) Mixed lesions, vascular and sympathetic of the oropharynx, cause goiter and heart troubles—of the vault of the nose, exophthalmos and heart troubles; of the whole rhinopharynx, typical Basedow's disease. (3) Sympathetic lesions alone, of oropharynx, of the cavum and nose, of the whole rhinopharynx, cause cardiac troubles without goiter or exophthalmos.

OBSTETRICS AND GYNECOLOGY.

Spinal Anesthesia in Obstetrics.—This procedure has been used in obstetrics for two distinct purposes, says A. W. W. Lea (Jour. of Obst. and Gyn. of the Brit. Empire, Jan., 1902), (1) to mitigate or remove the pain of labor, and (2) as a method of analgesia for performing obstetric operations. The duration of analgesia is insufficient to render labor free from pain unless repeated injections are given. This plan exposes the patient to the risk of toxic symptoms, and also to the dangers of repeated punctures of the subarachnoid space, and hence cannot be generally advisable. It is, however, possible to give injections when the os is almost fully dilated, and so produce analgesia throughout the second stage of labor; but under these conditions small doses of chloroform give very good results. It has been held by some, Lucas, Championnière, Schroeder, Boudin, that chloroform tends to produce hemorrhage not more frequently than in normal cases. If, however, a distinct tendency to hemorrhage is present, spinal anesthesia by cocaine may by its stimulating action on the uterine muscle possess certain advantages. Up to the present time it has been adopted in over two hundred cases without any serious accident. Puech

considers that up to the present time its superiority over chloroform has not been demonstrated in that it does not produce painless labor nor in operative work have its advantages over chloroform been established.

Contraction and Retraction of Uterine Muscle.—In the first number of the Journal of Obstetrics and Gynæcology of the British Empire PETER HORROCKS says that the following points may be stated: (1) Contraction of a muscle is generally, but not always, accompanied by an approximation of its two ends. (2) When a muscle is shortened to its fullest extent, it can relax or contract without becoming longer or shorter. (3) When muscle contracts, it is unable of itself to return to its former condition: some other muscle or force is required to pull it out or extend it. (4) When muscle contracts and then simply relaxes, it is in a condition called retraction. (5) Retraction is a condition of a muscle in which the active contraction has given place to simple relaxation without extension. (6) In a state of retraction there is a slight and constant contraction called tone. (7) Retraction may be partial or complete, according to the amount of preceding contraction. If the muscle has contracted to its fullest extent before relaxing, the retraction is complete; if anything less than its fullest extent, it is only partial. (8) Retraction of the uterus in labor affects only the expulsive fibers of the fundus and upper two-thirds of the body of the uterus. It keeps the sinuses and broken blood-vessels of the placental site closed, and is therefore of the greatest importance. (9) After the third stage of labor the uterus is sometimes in an active state of contraction, when it is more or less spherical and feels hard and well defined in outline, and sometimes in a state of relaxation, when it is softer and less spherical, and not so defined in outline; but such a condition is quite normal, and in no way indicative of danger. (10) Labor pains are in all probability reflex acts. (11) The less they are interfered with the better. (12) Complete retraction of the uterus is the safest condition for the prevention of postpartum hemorrhage. (13) Complete retraction is obtained by complete contraction followed by relaxation. (14) The law of polarity, as applied to the uterus, is that when the expulsive fibers contract the sphincter fibers relax, and permit themselves to be stretched or extended. (15) The cervical canal can be opened up apart from pressure within, and this is accomplished probably by relaxation of this circular fiber and contraction of the longitudinal fibers of the cervix and lower zone of the body of the uterus. (16) Painless uterine contractions taking place during pregnancy are not followed by retraction, because the fibers are stretched out again by the hydrostatic pressure of the liquor amnii.

Polypi of the Meatus Urinæ.—These are usually situated on the floor of the urethra about two or three millimeters from the orifice of the meatus. They are derived from the epithelioma, from the blood-vessels, from the glands or are from papules of the urethral mucous membrane. Again all portions of the mucous membrane may take part in their formation. They may be single or numerous. They occur at all ages, but most frequently between twenty and thirty. The commonest causes of them are blennorrhagia, leucorrhea, irritation from menses, and coitus. The symptoms are dribbling of urine, sensation of a foreign body in the urethral canal, frequency of micturition, burning and pain during micturition and coitus, bloody discharge, pains in the lower portion of the abdomen and in the groins. The diagnosis can usually be readily made, but when one suspects malignant growth a small portion can be removed and submitted to microscopical examination. The prognosis is good, but there may be complications, such as cystitis, urethritis, uretrocele and prolapse of the urethral mucous membrane. Rarely they may become epitheliomata. Various treatments have been employed in their removal, all of which must be operative to procure an ultimate cure. Some tie off the pedicle, others snip them off with knife or scissors and cauterize the base. The most effective method, however, is to proceed after the same method as is employed in the Whitehead operation for the cure of hemorrhoids. The mucous membrane is separated just as is the pile-bearing area and that portion containing the polypi is drawn down and cut away. The cut portion of the mucous membrane is then brought down and sutured to the orifice of the urethra where it was previously incised. Interrupted sutures are to be used. Four or five are usually sufficient to get a good approximation, according to LEROY (Gazette de Gynecologie, Jan. 1, 1902).

Operations for Retrodisplacements and Prolapse.—The final results of any method of treating disease is always instructive. On account of the rapid progress that surgery has made in the last twenty-five years, statistics concerning it are especially interesting. H. ANDERSCH (Arch. f. Gyn., B. 65, H. 2) reviews the various methods of treating retroflexion and prolapse of the uterus by operation. With special reference to the results obtained, his conclusions are the following: (1) All non-adherent retroflexions with or without prolapse or descent should be treated with pessaries whenever possible. (2) Non-adherent retroflexions, which are complicated with prolapse or descensus of even a very small degree, and all cases of prolapse or descensus without retroflexion of the uterus should be treated by vaginal fixation, if pessaries cannot be worn, and in accordance with the age of the patient. (3) The rare forms of isolated retroflexion of the uterus, with mobility, which cannot be treated with pessaries, must be subjected to either a ventral fixation or an Alexander-Adam operation. (4) All adherent retroflexions of the uterus which require operation at all should be treated by ventral fixation.

Vesico-Vaginal Fistulæ.—Any new rational method of treating these obstinate and troublesome lesions should be hailed with delight. M. A. CASAMYOR (La Gynec., Dec. 15, 1901) presents the following technic for small fistulæ, which certainly pleads a great deal in its favor: The patient is placed in Sims' position and four artery clamps are applied about the margin of the fistulæ after the latter have been cleaned of granulations and fragments. The four clamps are then seized as retractors and the anterior wall of the vagina is drawn toward the vulva into a funnel shape. While so held the wall of the bladder is stripped off the vaginal tissue and turned inward toward the cavity of the bladder. This dissection is carried out all around the fistulous opening and upward for one and one-half to two centimeters. When this step has been accomplished a purse-string suture is passed through the vaginal tissue, which is on the vaginal side of the points where the two layers are in normal anatomical relation. While traction outward is made the purse-string suture is tied and reënforced by one or two interrupted sutures across the opening in the stump which then occurs. A retention catheter is then introduced and retained for four or five days. His cases have done exceedingly well under this simple maneuver.

Triplets.—Multiple births among mankind are after all not by any means uncommon, and any contribution which seeks to explain their cause is of scientific interest. Such is presented by R. SAINTER (Z'schr. f. Gbtshülfe. u. Gyn., B. 46, H. 3). He gives the following data: Out of 70,477 births, 30 cases of triplets alone have been noticed. This is too large a number

but is due to the fact that at the institution in which the statistics were gathered a very large number of the women are primiparæ. This would make the average one set of triplets in every 2,349 births, which is certainly not the truth. Another reason perhaps for the large number is that in multiple births a physician is often on hand and the case is suitably recorded. The revised and modern statistics from all possible sources make their occurrence practically one in eight thousand births. Quadruple births seem to occur once in 371,126 cases and twins once in 89. The age of the mother is a factor in these cases. In twins the greatest number give birth to them between the twenty-fifth and thirty-fourth years, while in triplets the range is from the thirtieth to the thirty-ninth year. The number of previous pregnancies in the same mother always appears to have an influence. There is no doubt that multiparæ show the greatest tendencies toward triplets, and the greater number of children a woman has had the greater is her chance of having either twins or triplets. The revised and modern statistics show further that as a rule triplets occur among the youngest children of very large families on the average oftener than do twins. The character of the previous pregnancies is also a factor in the case. The individual disposition of some women to twin pregnancies is already accepted and indeed to multiple births also. Meribeau has found cases, seventeen in number, in which three, four, five or even more children were born at the same time. Sainter himself has seen three mothers of triplets who had previously had twins once, one mother who had twins once and triplets once previously, and another who had had twins twice and triplets once previously. There are other conditions connected with the pregnancies which are along the line of abnormalities. Many women who have triplets give a history of many miscarriages and abortions. The author has seen eight cases with one abortion, two with one miscarriage at seven months, others with two, four and three abortions respectively, and the last added two miscarriages in addition. Heredity is another matter to be remembered. It holds as well for triplets as for twins. He has seen one case in which the mother herself was a twin; in another brothers and sisters were twins, and in the third the mother had had twelve single and two twin children. The duration and course of the pregnancies are also important. The rule seems to be that the majority of threefold conceptions are not carried to term, but are ended in the second half of the eighth month. A great many of these patients are lost before the pregnancy is half over. The nature of the delivery itself is important to remember. The average length is twelve hours, as in single or double births. The interval between the appearance of the children may be very short or very long. The average is about half an hour, but such intervals as four, six, nine and a quarter, and twelve and one-half hours have been noticed. There is at the present time, however, no record in which the delay between the births of the children has been a matter of days or even weeks, as is sometimes seen with twins, making such pass into the category of superfetation. Childbed is as a rule normal and favorable. The prognosis for threefold conception is as good as for single conception with the sole exception that eclampsia is the chief danger. The children are necessarily much smaller than in twins or in single births. The records show that in 768 cases all were boys 409 times, and all were girls 359 times. Where the sex was mixed in a total of 921 cases two boys and one girl occurred 504 times and two girls and one boy 420 times. The formation of the placenta is the latest point of interest. It seems as if the rule were that the after-birth is divided into two sections most frequently. Next it occurs as one large mass and least frequently there are three separate after-births. Triplets produced from one ovum, as is shown by the occurrence of one chorion, have been recorded only twice. The children therefore had one placenta and were all of one sex. Triplets produced by two ova have been recorded fourteen times. Such would have usually two, never three, placentæ. Triplets produced by three ova, in which each had its own chorion, have been found but nine times. In this case, of course, the children had each its own placenta, but six of the cases had two placentæ. The essential cause of such threefold conceptions is not known and probably never will be.

PATHOLOGY AND BACTERIOLOGY.

The Blood in Syphilis, Tabes and General Paralysis.—In primary syphilis examination of the blood shows a moderate anemia, a positive leucocytosis, and a relative increase in lymphocytes. In the secondary period, according to Sabrazes and L. Mathis (La Presse Méd., Jan. 22, 1900) the anemia persists; polynuclear neutrophiles are now increased in number; the percentage of eosinophiles is low. Mercurial treatment causes an elevation in the number of red and of white corpuscles. In tertiary syphilis the blood approaches normal. In tabetics a slight decrease in corpuscular elements was observed, with some degree of relative hyperleucocytosis. In general paralysis, the stage of euphoria is characterized by eosinophilia and a high red blood count. In none of the cases just referred to was there any morphological alteration other than polychromatophilia, and even this was rare.

Compensatory Hypertrophy of the Kidney.—In order to ascertain the pathological changes present in compensatory hypertrophy of the kidney, Gino Galeotti and Gius. Villa-Santa (Beiträge zur path. Anat. und allg. Path., B. 31, H. 1) have observed the results of unilateral nephrectomy upon dogs and rabbits. They show that the changes in the hypertrophied kidney vary accordingly as the animal is young and in the development stage or is full grown. In the first instance the number of the glomeruli is increased; in the second there is no increase in number, but each is markedly increased in size. The result is the same in both cases—an increased functional activity. The work is of interest in showing how cells under different conditions of life react to a stimulus which calls for an increase of living substance.

Iodophilia.—Iodophilia, so-called, is the reaction which certain of the white cells of the blood show when a dried blood film is brought in contact with a drop of the following solution: Iodine, 1 gm.; potassium iodide, 3 gm.; water, 100 c.c.; gum Arabic, 50 gm. Normally under these conditions the leucocytes stain a bright yellow, the nucleus being somewhat more refractile than the protoplasm, so that the different varieties of leucocytes can be easily differentiated. In certain pathological conditions the uniform coloration is broken by the appearance in the protoplasm of the polymorphonuclear neutrophiles of reddish-brown granules, or a diffuse brownish coloration, and by the presence of small and large masses, outside the corpuscles, similarly colored. There is thus present an extra- and an intracellular reaction. E. A. Locke and R. C. Cabot (Jour. Med. Research, Jan., 1902), as the result of extended observations in regard to the occurrence of this reaction, believe that the brown masses outside the corpuscles are present in small numbers in all blood both normal and abnormal, but frequently in such minute amounts as to be found only after long searching. Only an increase of these masses is to be

considered pathological. They are uniformly and markedly increased in diabetes mellitus, in chronic and very severe acute suppurative diseases and rarely in a few other conditions, but in general their increase is of little importance from a diagnostic standpoint. The intra-cellular granules are always to be considered as pathological. Their presence does not signify a special disease or condition but a general toxemia. Though more constantly positive in the presence of pus than with other conditions, one cannot make a diagnosis of sepsis or of a purulent accumulation from their presence alone. Iodophilia is not identical with, neither does it coincide in its indications with, any of the ordinary physical signs, as leucocytosis, fever, etc. The authors have never observed this reaction in any but severe cases and they believe it to be more reliable in this respect than either leucocytosis or fever. A positive reaction occurs with considerable regularity in the following conditions: Infection with pyogenic organisms, toxemia of bacterial origin, non-bacterial toxemia (uremia), disturbances of respiration and grave anemia, both primary and secondary. Locke and Cabot have never found the reaction in pleurisy, rheumatism, extra-uterine pregnancy, alcoholism, abscesses with free drainage, lead poisoning, early malignant disease, nervous conditions and tuberculosis when uncomplicated by secondary infection.

Myelotoxic Serum.—To the list of toxic serums, in which are included the cardiotoxic serum of Centanni, the leucotoxic of Metchnikoff and Besredka, etc., G. Sulli (La Riforma Medica, Jan. 16 and 17, 1902) has added a myelotoxic serum. The method of its production was as follows: The medullary substance was aseptically extracted from the femur of a rabbit; this was deposited in a pocket which had been made in the subcutaneous tissue of a dog, in the lumbar region a few centimeters external to the vertebral column; the wound was sutured and a dressing applied, due asepsis being observed. After six days, the dog was subjected to the same operation upon the opposite side of the vertebral column, also in the lumbar region. Six days after the second operation the blood was extracted from the carotid artery of the dog, and the serum injected into the subcutaneous tissue of a rabbit, 5 c.c. to each kilogram of the latter's weight being used. The injections were repeated daily, in the same dose, for eight days. The only noticeable effect of this treatment was progressive emaciation. Two days after the last injection, the rabbit was killed; and upon microscopical examination the medullary cellular elements showed marked degenerative reaction to the serum. Carrying the experiment further, the author produced an antimyelotoxic serum by injecting into a rabbit myelotoxic serum for eight consecutive days, 8 c.c. to the kilogram being used. On the ninth day the blood, now presumably antimyelotoxic, was abstracted from the abdominal aorta of the rabbit. Another rabbit received an injection of 5 c.c. of myelotoxic serum, followed by an injection of double the quantity of antimyelotoxic, which had been heated to 55° C. in order to destroy the alexins. Ten days after the first injection, the rabbit was killed, and upon microscopical examination the medullary cells were found free from degenerative change.

Cytoprecipitins.—This subject is exhaustively treated in a series of articles by E. Centanni (La Riforma Medica, Dec. 21 and 23, 1901, Jan. 8 and 10, 1902). Solution of the following questions was sought through animal experimentation: (1) Do cytoprecipitins exist in normal individuals? (2) Are they formed through vaccination with cellular elements? (3) Do they occur in the spontaneous absorption of pathological tissues? (4) Have they specific characteristics through which a differential diagnosis of the agents producing them could be made? The first question was answered in the negative through absence of the phenomenon of precipitation after contact of the healthy tissue of an animal with serum extracted from its own organism; hence it is concluded that physiological life goes on without the presence of autocytoprecipitins in the blood. A negative result followed contact of serum from one animal with the healthy tissue of another of the same species (isocytoprecipitins). The same experiment with animals of different species was negative (heterocytoprecipitins). Exception must be made to the above statements in a few instances, but the occasional precipitate observed could be distinguished from a pathological precipitate by the pulverulent rather than flocculent character of the former, its scant quantity, and by the fact that the supernatant fluid did not clarify. The solution of the second question was sought through vaccination with toxic serums; leuco-, nephro-, cardio- and hemotoxic serums being used. In the case of the leucotoxic serum, five vaccinations were practised and serum was withdrawn after each; precipitation occurred in varying degrees, being very abundant after the fifth vaccination. The reagent employed was the medullary plasma from the femur of a rabbit. Experiments with other toxic serums also yielded more or less marked reaction. The conclusion is drawn that a cytoprecipitin resulting from vaccination with cellular elements can be demonstrated, though not invariably. The question of cytoprecipitins in pathological processes was next taken up; the tissues of subjects who had succumbed to phthisis, hepatitis, etc., were used, as well as experimental laboratory material. Diseased human tissue yielded a constant and abundant precipitate upon addition of serum; the results were less marked with laboratory material. A positive answer to the fourth question cannot yet, in the author's opinion, be given, though some indications point to an affirmative solution.

Intestinal and Amyloid Disease in Tuberculosis.—A careful analysis of over 6,000 autopsies conducted under the supervision of F. W. Zahn (Münch. med. Woch., Jan. 14, 1902) showed that in 32½ per cent. tuberculosis was present, and of these 92 per cent. belonged to the active and 8 per cent. to the latent type. Concerning the distribution of the process in the different organs the following figures were obtained: The lungs were involved in 80.7 per cent., the bones and joints in 3.2 per cent., the urogenital organs in 2.2 per cent., the suprarenal in 1.1 per cent., the brain in 0.3 per cent., and the intestines primarily in 2.3 per cent. Intestinal lesions were found much more frequently as a consequence of a focus in the lungs, to wit, in 63.2 per cent. of all active pulmonary cases. This is no doubt owing to gastric changes, such as acute parenchymatous and chronic interstitial processes, glandular atrophy and amyloid degeneration which so frequently are found with pulmonary tuberculosis and which permit the bacilli to reach the gut in a still active condition. Marked amyloid changes were found in only 1.6 per cent. of all autopsies.

Agglutination Test in Tuberculosis.—The agglutination test of Arloing and Courmont was tried in 256 cases by E. Romberg (Münch. med. Woch., Jan., 1902) in order to determine if a positive reaction in apparently healthy persons shows an active latent tuberculosis and if a negative reaction can also be caused by a latent process turning inactive. The result the author arrives at is that considerably more clinical and anatomical data must be gathered before the question can be decided. The reaction was always negative in those cases in which tuberculosis was most apt to be absent, namely, in the newly-born. When tuberculosis was clinically

present, agglutination occurred in 80 per cent., the remaining 20 per cent. consisting of severe and progressive cases of phthisis or of inactive forms. In 102 patients above fourteen years of age without any evident signs, the reaction was positive in 62.7 per cent. Whatever the ultimate conclusion may be, it follows that the serum reaction does not aid in the early diagnosis of manifest tuberculosis.

SURGERY.

Management of the Anesthetic in Operations on the Respiratory Tract.—If a cone or inhaler be used in operations about the nose or mouth the etherizing and the operation cannot very well be carried on together. H. P. Mosher (Boston Med. & Surg. Jour., Jan. 23, 1902) describes an apparatus which has been used successfully by Dr. T. Fillebrown and Dr. M. F. Rogers in cleft palate operations for the past three years. It is based upon the familiar principle of forcing ether vapor through a tube. A stream of ether vapor plays constantly over the patient's mouth. A water-bath keeps the ether from freezing in the bottle in which it is vaporized and the ether is forced through the tube and into the patient's mouth by a bellows. A valve in the stopper of the ether bottle gives the anesthetist a simple method of administering any proportion of ether and air desired. The water-bath is kept warm by a shielded alcohol lamp. The apparatus is useful in adenoid work. In such work chloroform is dangerous and nitrous oxide gas alone does not give a sufficiently long working period for the nice cleaning of the mouths of the Eustachian tubes. If gas is given for an extended period the resulting blueness is very disquieting, for in these operations there is always danger of getting blood in the trachea, and one of the signs of this dangerous complication is marked and persistent blueness. The upright position affords the best illumination of the parts to be operated on in adenoid and similar work; in this position, also, bleeding is less.

Surgery of the Skull and Contents.—As in the operative treatment of abdominal and thoracic affections aseptic in contradistinction from antiseptic methods have led to a great reduction of mortality, so, too, in dealing with the brain, its membranes and bony support, a decided advance has been made in virtue of the same improved technic. J. S. McArdle (Med. Press & Circ., Dec. 25, 1901) says that even in modern practice contemptuous disregard is shown for the method adopted in the treatment of compound fractures of the skull. Death certainly results in most of the cases through septic meningitis. If in fracture of the long bones it be necessary to deal vigorously with the parts exposed to infection, it stands to reason that in managing fractures which open up the diploe and expose the dura the most vigorous precautions should always be taken, first, in cleansing the wound and, second, in securing free drainage. The more radical and thorough the surgical procedure adopted the better will be the result. In injuries of the skull in which infection is absent but in which there is great intracranial tension, the latter may of itself do great damage to the brain if continued too long. There ought to be no hesitation as to the method of treatment, which ought to be the same here as elsewhere in the body. In cases of fever many patients may pass into a state of coma from intracranial pressure alone after the general tissues of the body have practically overcome the infecting germs. Why should there be in such cases any hesitation about relieving the brain and spinal cord of the products of microbic action? In syphilitic, alcoholic and other diseases which cause intracranial tension the brain should be relieved surgically rather than medically. Drainage when necessary must be free. Many patients seem hopeless on the table, but when so placed that drainage is perfect they soon recover. In washing the field of operation such fluids as carbolic acid and bichloride of mercury must be avoided.

Subserous Appendectomy.—The methods of caring for the stump of the appendix seem to be without end. Many of them lack the common sense of good surgical procedure. Under this heading the subserous method may be classed, because it does not take account of the fact that the peritoneum may be the seat of numerous virulent germs in appendicitis, although to the naked eye it may appear to be comparatively healthy. In a purely catarrhal appendicitis it probably finds its best field. Dr. Vignard (Rev. d. Chir., Dec. 10, 1901) describes the technic as follows: After the cecum is exposed and drawn out of the wound with the appendix, the tip of the latter is seized with forceps and the organ stretched out by an assistant. About one inch from the base of the appendix the peritoneum is cut through in a circular manner and then the peritoneum is stripped back to the base of the organ. At this point a ligature is placed and the appendix removed. The stump is appropriately treated and then the wide sleeve of the peritoneum, previously described, is drawn forward like a sheath over the stump and there closed by stitches or by ligature.

Treatment of Congenital Cleft Palate by Mechanical Appliances.—The impairment of the normal voice is the only functional disorder resulting from congenital cleft palate which in the opinion of G. E. Raymond (Boston Med. & Surg. Jour., Feb. 6, 1902) justifies any attempt at restoration. The inability of the infant to swallow is overcome by the nimble tongue long before the child is old enough for either an operation or an appliance. Raymond believes that perfect speech has never been obtained in these cases by a surgical operation. Mere closure of the cleft is one thing; a physiological palate is quite another. When a case is operated on in early childhood the development of the surgical palate is not commensurate with the growth of the neighboring structures of the mouth and throat; hence what is gained in childhood may be lost later. When an appliance is used it can at any time be replaced by another if the development of the patient demands the change. Raymond has obtained satisfactory results by the use of mechanical appliances in a series of cases which he describes.

Fractures of Upper Third of Femur.—The tilting forward of the upper fragment in fractures of the upper third of the femur cannot be prevented; successful treatment must, therefore, recognize this fact and be influenced accordingly. The lower fragment must be placed in the line indicated by the position of the upper fragment—that is, in a flexed position—and, as the upper fragment is usually displaced outward also to some extent, the limb should be slightly abducted. Since displacement results principally from muscular contraction, extension is strongly indicated and with coaptation splints may secure perfect immobilization. R. A. Hibbs (N. Y. Med. Jour., Feb. 1, 1902) recommends the long traction hip splint for these purposes, such as is used in the treatment of hip disease. By this means, extension is always constant and direct, and may be made to a degree that will absolutely control the muscular spasm. Changes in the position of the patient do not affect it, nor does its force depend upon the weight of the patient. Coaptation splints are of minor importance and can be easily made by attaching straps to the strong iron rod along the upper part of the thigh. An anesthetic is necessary to apply properly

the splint. The adhesive plaster should run up to the fracture and considerable extension should be exerted during the first few days. The leg is raised to an angle of about 135°, but after the splint is applied movements of the spine may be allowed without interfering with the position of the fragments. The perineal straps should be removed each day, one at a time, and the parts bathed and powdered.

Syphilis of Rectum and Anus.—A common mistake, when a physician doses a patient with mercury and diarrhea supervenes, is to presume at once that the cause of the diarrhea is the medicine. J. A. HAWKINS (International Med. Mag., Jan., 1902) emphasizes the fact that in syphilis the rectum should be examined as conscientiously as the eyes, throat and glandular system, for frequently the diarrhea will be found to be a part of the disease. Chancres are rare, are generally found below the internal sphincter and must be attributed to unnatural intercourse. The most common affection is the condyloma, which, either singly or in groups, occasions considerable distress from the burning and discharge; it is frequently mistaken for hemorrhoids. Mucous papules, too, are not rare, are generally situated on the posterior surface of the bowel, and, though they often are ulcerated, only exceptionally cause pain, discharge or bleeding. Gummata may lead to ulceration, obstruction or subsequent stenoses. The treatment of syphilis of the rectum does not differ from that of syphilis in general, with the addition of such surgical interference as may be necessary. Thus, for stenosis, linear proctotomy with subsequent use of bougies is best, though a persisting ulceration often necessitates a subsequent colostomy, preferably in the left inginual region.

Progress in Radiography.—Many and varied are the advances in radiography to be noted during the past year, not only in the apparatus used but also in its wider application to both surgical and medical disorders. Among the improvements in the instruments A. SCHONBERG (Münch. med. Woch., Jan. 21, 1902) mentions the electrolytical interrupter, the orthodiagraph of Moritz which permits the use of the perpendicular ray, and Cowl's apparatus by means of which radiographs can be taken in different stages of respiration. The use of leaden diaphragms permits investigation of such structures as the cervical vertebræ, the head of the humerus, mastoid cells, the interior of the skull, etc. Apparatus for stereoscopic pictures have gained considerable popularity and are invaluable for the examination of congenital luxations. An entirely new field is the photographing of teeth and such deep-seated structures as the antrum of Highmore and frontal sinuses. Now as before the most useful field for the X-rays is to be found in the examination of fractures, especially if two pictures in different planes are taken, and it is only in very obese people and in the epiphyseal separations of children that difficulties may be experienced. Little new is to be said concerning dislocations, except that more accurate reduction is possible. Osteomyelitic foci and sequestra yield very satisfactory pictures, especially in the bones that are not readily accessible to direct palpation; the early stages of tuberculosis cannot, however, be diagnosed, since the process here begins in the bone-marrow, while syphilis and tumors of bone are generally easy to discern. Hardly any advancement has been made in the localization of foreign bodies, nor have the Röntgen rays done much in ophthalmology or in laryngology. An extremely interesting and valuable but difficult matter is the detection of calculi. For stones in the bladder the method is valueless except in the very rare cases in children and in cystoscopy there is a more reliable method of examination. Not much more encouragement can be given in the diagnosis of gall-stones, but it is in detecting renal stones that the X-rays are often of the greatest help, provided the stones do not consist of uric acid, cystin or xanthin, provided they are larger than a bean and provided the patient is not very corpulent. In the examination of accident cases much information can be gained, but care must be exercised not to consider such structures as supernumerary sesamoid bones as fragments of bones resulting from injury. Turning now to internal medicine, it will be found that here also much progress has been made, though the results on the whole are far less gratifying, for the constant movement which the thoracic and abdominal organs undergo makes it clear that sharp plates are only exceptional. For tuberculosis, radiography can be considered only an adjunct to the usual methods of examination and it would be a mistake to base a diagnosis upon the appearance of the plate alone, though valuable evidence as to the amount of infiltrated and destroyed tissue can be obtained and cavities can generally be identified as such. When the process is situated deeply in the lung, as in hemorrhages, infections, abscesses, tumors and echinococcus, percussion and auscultation often yield unreliable data and much may be expected from the Röntgen rays, which are also serviceable for the investigation of the position and amount of fluid in the various forms of pleurisy with or without air. The position of the diaphragm, limited unilateral excursions of this muscle and the presence of a diaphragmatic hernia can be sometimes recognized. The exact determination of the heart boundaries has been rendered possible by the orthodiagraph, even in cases of advanced emphysema or in women with large breasts, on whom percussion cannot be employed, and by means of no other method can the position and size of the right auricle be ascertained so well. In the following other conditions the Röntgen rays are of inestimable value: Aortic aneurisms, especially with the aid of oblique transillumination, mediastinal tumors, stenoses and diverticula of the esophagus, which show clearly when the patient is directed to swallow a wafer with bismuth, and in the various changes in size and position of the stomach, when with the aid of bismuth the lower border becomes distinct. The detection of drugs, such as arsenic, in the stomach and intestines is a possibility which is being diligently investigated. Last, but not least, is the value of Röntgen's wonderful discovery from a therapeutic point of view, especially in lupus, scrofuloderma, lupus erythematodes, eczema, rosacea, acne, prurigo, sycosis and favus.

Adhesion Breaking.—Adhesions within joints are always troublesome and their cure determines the degree of satisfaction which the patient feels in his case. G. W. ORD (Lancet, Jan. 12, 1902) states that to break down adhesions without an anesthetic is often a matter of necessity. The passive motion which follows the breaking down is always a very painful proceeding and frequently takes the form of exquisite and repeated agony. The pain may last a long time after the manipulation has stopped, so that the patient dreads the appearance of the physician for the treatment. The method which he recommends consists in fixing the part above the stiff joint by means of the surgeon's left hand to the bed or the table and then quickly causing the movement in the joint. Adhesions in the wrists, shoulders and knees are too often broken down without getting the patient into a good position. It is a mistake to treat adhesions of the shoulder or the wrist with the patient sitting or standing. A large amount of pain is caused with comparatively little result, for the reason that the patient is in the best possible position to resist. With regard to the knee-joint the muscles around it are so strong that the advantages of his

method are at once apparent. In detail his technic is the following: For the shoulder-joint manipulations, the surgeon stands behind the patient's head, while the latter lies flat on his back on a hard mattress. The surgeon's hand is placed flat on the clavicle of the affected side, pinning the patient to the mattress or the table. The right hand of the surgeon then takes the extremity at the elbow and raises the latter joint until it is on a level with the shoulder joint. In the case of the wrist the patient's forearm is placed on the table in the supine position. The surgeon's left hand holds the forearm to the table, while with his right he grasps and flexes the patient's hand quickly to a right angle. Finger-joints are treated in the same way. The hand is pinned down to the table with its palm upward and the manipulation is carried forward with the right hand of the surgeon. In treating the knee the patient lies prone upon the bed and the surgeon's left hand grasps the thigh just above the knee and holds it firmly to the table or bed. The right hand then seizes the leg just above the ankle and quickly makes a flexion at the knee. There must always be some pain when adhesions are broken down, but this quick method makes it momentary. A large amount of joint movement is obtained at once by means of far less force than would otherwise be necessary. The resistance of the patient, which in other methods is a large factor, becomes a very small one. The duration of the after-treatment is also rendered less because at the first effort a larger amount of mobility is obtained.

Amputation and Sepsis.—The question as to whether amputation of a limb is a justifiable operation in general sepsis following a local process is discussed in two articles by H. Brauser and H. Doerfler (Münch. med. Woch., Jan. 21, 1902). The former is of the opinion that amputation is indicated as an early operation in those severe cases of sepsis in which, despite free incision, the process rapidly extends and life is in imminent danger, and as a late operation when wide incisions have also been made, but no reactive powers on the part of the individual are noticed and the local and general symptoms continue unabated. The second author, on the other hand, finds that in the first set of cases, usually induced by the bacillus of malignant edema, amputation never stays death, while in the second set it is sufficient to incise up to the limits of the inflammatory edema, and to increase these incisions if the edema is found to spread, even if this be up to the trunk. Numerous cases are cited in which even cocci were found in the blood and metastatic foci had already formed and in which this procedure was life-saving without the loss of a limb.

Hernia in Infants.—Great anatomical defects in the walls of the trunk are usually the primary cause of hernia in infants. J. D. Rice (Lancet, Jan. 4, 1902) reports a case of strangulated inguinal hernia in an infant nineteen days old with operation and recovery. On examination he found a tense swelling partly filling the left side of the scrotum and the inguinal canal, without impulse when the child cried, and with a doubtful or dull note on percussion. The skin over it showed edema and redness. The subcutaneous tissues were also involved. The swelling was absolutely irreducible, very painful and tender. There was no vomiting and the general condition of the patient was so good that an evaporating lotion was prescribed and the child put to bed, with its buttocks on a pillow, with the diagnosis of a possible hydrocele of the cord. The next day, however, all the bad symptoms appeared—violent vomiting, blood and mucus with the stools, and prostration. At the operation, which was done as soon as possible, a very tight stricture at the upper end of the inguinal canal was found. When this was divided the gut slipped back into the abdomen. The intestine was dark in color, but not black. The wound was closed in the usual method and the child, although in a bad condition on the operating-table, soon rallied and was feeding at the breast a few hours after the operation. Convalescence was uninterrupted and at the end of two weeks the wound had entirely healed by first intention. Nine weeks after the operation there was only a small scar present without bulging even when the child cried.

Vesical Calculi.—The promptness with which a diagnosis of stone in the bladder is made is an important element in the prognosis. K. Dohrn (Deut. Z'schr. f. Chir., Dec., 1901) says that if examination with a stone-searcher or with a cystoscope is impossible, either through stricture of the urethra or enlargement of the prostate gland, the X-rays should always be resorted to. In fact in all cases a radiogram would be advisable because it shows at one sitting such features as the size, position and number of the stones. Unfortunately the great value of the X-rays for recognizing stones is up to the present not yet appreciated. The difficulty seems to be in the general ignorance of the fact that the kind of stone influences the picture. Phosphatic stones are the most penetrable and therefore give the poorest picture. Uric-acid stones are less penetrable and the oxalic acid stones are the most opaque. While authors differ as to this precise relationship, in the main this is the best classification with reference to shadows they cast on the plate. Another important point is the length of exposure, which in general terms should be short, especially with the more easily penetrable bodies. The experience of the writer in this last particular is that an average exposure of two and one-half minutes is enough. On the other hand, there are some cases in which a shorter and others in which a longer exposure is necessary; so that the difference between them would be represented by one minute for the shortest and two minutes for the longer times. A very important field in which a radiograph is serviceable is that in detecting stones in diverticula of the bladder. It is precisely in this class of cases that other means of diagnosis are apt to fail, leaving this method in sole possession of the field. The author is certain that, as knowledge of the X-ray increases, the frequency with which it is available for medical purposes will be increased.

Interstitial Hernia.—This form of hernia is so rarely encountered that many operators overlook its essential nature when in the hurry of an operation they unexpectedly come upon it. P. Berger (Rev. de Chir., Jan., 1902) presents a long discourse on the subject and advances the following propositions concerning it: It is necessary to apply in man the term inguino-interstitial herniæ to those congenital ruptures which are complicated by ectopia testis and in which the hernia itself extends into the thickness of the abdominal wall, winding more or less among the musculo-aponeurotic planes. Such herniæ present two principal varieties—in one it is distinctly parietal, and in the other in addition to being intraparietal it is scrotal also, through a secondary sac or diverticulum which passes through the external inguinal canal and ring. The intraparietal part of the sac is for the most part a finger-like prolongation or process which turns outward toward the anterior superior spine of the ilium. It is usually pointed much like the finger of a glove, has all the characteristics of a congenital sac and usually contains the viscus because the scrotal prolongation is usually so narrow that it will not admit it. The external inguinal ring is usually closed excepting in the cases in which a scrotal sac exists as well as an interstitial sac. Sometimes it is sufficiently patent to permit the passage of the testis. The internal inguinal ring is often placed a little higher and a little farther out nearer the anterior

superior iliac spine than is usually the case. It presents therefore a congenital displacement which has been so described by Meinhardt-Schmidt. It is necessary to distinguish with care these cases from those in which the deep inguinal ring is twisted and displaced inward toward the abdominal cavity, chiefly by efforts at reduction of the hernia. In the space between these two rings the intraparietal sac usually spreads out between the aponeurosis of the external oblique muscle and the transversalis fascia. It is not unusual, however, to find its anterior surface covered by the internal oblique fascia. Sometimes the sac sends forward a deep prolongation between the transversalis muscle and the transversalis fascia. These facts make this kind of hernia difficult to distinguish from inguino-interstital hernia complicated by a properitoneal hernia. The testis occupies a varying position in the hernia sac. Sometimes it is absent, thus complicating the hernia by a cryptorchidia. In the largest number of cases the testis is within the inguinal canal, sometimes fixed near the internal abdominal ring, more commonly just inside of it. It may also be situated lower down. Occasionally it is found at the external abdominal ring, which it then closes as a cork does a bottle. When the hernia is intraparietal and scrotal at the same time the testis may be found in the scrotal diverticulum of the sac. It may have this position through being slowly pushed forward. The organ usually presents a marked degree of arrested development. There are also at the same time a marked atrophy and a manifest weakening of the muscular planes and fibrous tissue of the abdominal wall. The cord is often short and adherent. Many bands of fibrous and muscular tissue serve to hold it down and they must be divided before it can be passed into the scrotum. Sometimes the cord is too short to permit this at all. It is certain that in many cases which present the characteristics of inguino-interstitial herniæ the testis in a state of intra-inguinal ectopia is situated in a sheath of its own entirely distinct from the sac of the hernia. There is then the rare condition of a proper tunica vaginalis testis, while the hernia is both intraparietal and scrotal in addition. In very rare instances inguino-interstitial herniæ which closely resemble the same class in men are found in women. The same two classes of intraparietal herniæ are found; one in which the type is pure with the sac confined to the muscles of the abdomen, and the other in which the type is mixed, adding to the foregoing a prolongation through the external abdominal ring into the labium major. The treatment of these herniæ should always be operative because it is almost impossible to retain them with a truss. The hernia should be approached by an incision of the external oblique muscle parallel with its fibers. The testis as a rule should not be retained. The one exception is when it is in a healthy condition and may be passed into and easily retained within the scrotum where it belongs. It would be better when possible to save it in children and youths who may by later development overcome its ectopia, but after the twenty-fifth year it had best be removed. In repairing the abdominal wall the surgeon will meet his greatest difficulties. If the method of Bassini appears to be insufficient to cover the opening it is best to reinforce that method by taking a flap of fibers from the anterior wall of the sheath of the rectus, turning it outward and downward over the inguinal canal and sewing it in place there.

Cancer of the Lip.—In no part of the body as in the face is cancer so slow in progress. Consequently its surgical treatment is more hopeful than elsewhere. L. J. JANOWSKY (Arch. f. klin. Chir., 1902, B. 65, H. 2) gives the following points as to the present position of the surgical world toward this disease: (1) Radical operation for cancer of the lip belongs to the class of safe surgical procedures. The healing of these wounds is so favorable that by far the greatest number of them are well in from nine to fifteen days. (2) The lymphatic glands in the submental and submaxillary region should always be removed. The latter must especially be sought for and ablated at the same time as the submental region is opened, because it is in this space that most of the secondary deposits occur. (3) When necessity indicates, no one should hesitate to resect the lower jaw because by so doing a radical cure is often obtained which would otherwise fail. (4) The lymphatic glands are usually attacked in cancer of the lip rather early, sometimes even after two or three months. But in a large number of cases even the presence of such inflammation does not shut out the chance of a radical cure. In some cases in which the glands are not apparently involved a recurrence in them will occur apparently almost as actively as if they are clinically attacked. (5) Favorable results of operation may be looked for in about forty-nine per cent. of the cases. (6) Recurrences appear in the majority of cases within six months after the operation, some during the first year, and a few between the first and the second years. (7) As a rule the return of the disease begins at the seat of the original lesions or in the submental space. (8) The duration of the process has a direct bearing on the result of the operation. If the cancer is a rapidly progressing one, the outlook is necessarily bad, but in those that grow slowly an operation may be undertaken sometimes a year or two afterward and still be successful. (9) Advanced age of the patient is hardly a contraindication to the operation, because good results have been obtained at an age of from sixty to seventy years. (10) Secondary operations upon return of the cancer may be undertaken; sometimes they will prolong the life of the patient, but necessarily only for a short time. (11) Cancer of the upper lip is recorded nineteen times less than cancer of the lower lip. In women it is ten times less common than in men. This is in the author's record of one hundred and seventy-eight cases. In 12 of his series, it was impossible to find that social position or occupation had any direct bearing on the disease. Advanced age (sixty to seventy years) seemed to be the greatest cause. The rapidly fatal cases apparently make up about twenty-five per cent. of the records; the slower processes, fifteen per cent., and the other sixty per cent. may be called the mean class.

Ascites.—This symptom of several conditions may be entirely removable by surgical means. H. ITO and K. OMI (Deutsche Z'schrift f. Chir., Dec., 1901) have been experimenting upon animals as to the possible causes of ascites and its remedy by surgical means. From the experiments they drew the following conclusions: Dogs as a rule perish in a short time with the symptoms of bleeding if their portal vein be suddenly and totally tied off. This happens whether the ligature is placed just above or just below the juncture of this vein with the gastro-splenic vein. With repeated progressive tying of the vein step by step toward the liver, beginning at its small tributaries of origin, animals may recover until the confluence of the two veins, as just stated, is reached. As soon as the ligature is placed beyond this point they die, but usually without such severe symptoms as when the vein is tied off at this point at the first sitting. If the omentum be caused to adhere to the abdominal wall and then after a while the vein is tied, some of the animals will perish and some will not. The same thing occurs if the omentum is similarly adherent outside of the peritoneal cavity. It seems therefore that it is not the location of the ligature but the extent of adhesions between

the omentum or other abdominal organs and the wall of the abdomen which determines whether or not the animal lives or dies. He lives if the collateral circulation be sufficiently active through these adhesions. The formation of adhesions and the inclusion of collateral veins within them are what occur when the omentum is transplanted in this wise. It is interesting to note that animals which recover from the last procedure remain well for months afterward and often increase in weight. The clinical application of these experiments is that in ascites the surgeon should seek to cause a widespread general adhesion as far as possible between the organs of the abdomen and the wall and between the organs themselves. The fixation of the omentum is really only a part of the whole process. It appears to make little difference whether the omentum is stitched to the wall within or without the peritoneal cavity. The important thing is that the intestines, the liver and the spleen should also be made widely adherent to the wall. Perhaps the most active means of promoting this adhesion would be a general tamponade of the whole abdominal cavity by means of a very long strip of sterile gauze, which should be tucked carefully into the pockets and angles of the peritoneal cavity. After twenty-four hours the packing could be removed.

HYGIENE.

Propagation of Yellow-Fever by Mosquitoes.—The presentation of collected statistics and observations on this subject by the chief sanitary officer of Havana, W. C. Gorgas (Phil. Med. Jour., Jan. 4, 1902), forms a strong argument in favor of the view that the *Stegomyia* mosquito is the only means of conveying yellow fever and that fomites can no longer be considered as carriers. Yellow fever, which has been endemic in Havana for 150 years, caused an average of 410 deaths from the first of April to the first of December, for the years since 1899, with a maximum of 1,175 for the year 1896 and a minimum of 79 for 1899, but this year only caused five deaths, although the chances were increased by the presence of a greater number of non-immunes than ever before. Although at first some precautions were taken against fomites, these have all been abandoned, including rigid quarantine and disinfection of fabrics and clothing. Attention was directed entirely to the mosquito, the house of an infected patient was screened, as many mosquitoes as possible were killed, and in addition oil was poured on all suspected breeding-places. General sanitation is in addition most important.

THERAPEUTICS.

Gelatin in Melena.—The hemostatic properties of gelatin show themselves better perhaps in melena neonatorum than in any other condition. A. Holtschmidt (Münch. med. Woch., Jan. 7, 1902) finds that with the old method of treatment 50 per cent. of the children are lost, while the injections save nearly all. It is better to inject a fairly strong 2 per cent. solution, since one can readily control its sterility, owing to the fact that it solidifies on cooling and any bacterial growth would readily show itself. Fifteen c.c. of the solution which have been kept on a water-bath for from five to six hours are injected into the subcutaneous tissues of the breast or thighs, generally in two places to prevent undue stretching of the skin. If necessary, the procedure may be repeated several times. Bad after-effects were never seen, not even a rise of temperature.

The Serum of Trunecek.—The inorganic serum introduced by Trunecek as a valuable therapeutic agent in arteriosclerosis contains all of the alkaline salts normally present in human blood-serum; the solution is concentrated, but the relative proportions of its alkaline constituents are maintained. The technic of its clinical use is described by Leopold Levi (La Presse Méd., Jan. 15, 1902). Trunecek begins by injecting 1 cubic centimeter of the solution, and the injections are gradually increased till 5 to 7 c.c. are given daily. The injections are given alternately on the left and right sides, the forearm and gluteal region being favorite sites. The remedy is applicable to cases of sclerosis of the great vessels, arterial cachexia, cerebral arteriosclerosis, and chronic rheumatism. Levi reports a case similar to those previously cited by Trunecek, characterized by attacks resembling angina pectoris, but occurring nightly for many months. After a single injection of inorganic serum relief was obtained. Satisfactory results were also obtained in cases of cerebral arteriosclerosis with symptoms limited to one side of the body. Not only were local manifestations of the disease, both sensory and motor, greatly modified, but general symptoms were likewise controlled.

Cure of Cancer of the Esophagus by Cancroine.—Cancroine is a toxin of undefined chemical composition isolated from cancerous growths. In its physiological properties it is identical with neurine, a toxic base obtained from fresh cadaveric tissues. It is maintained by A. Adamkiewicz (La Presse Méd., Jan. 22, 1902, that when injected into the circulation of cancerous subjects, cancroine exercises a specific action on the malignant growth, producing a necrosis of the carcinomatous elements with or without inflammatory reaction, with resorption and elimination of the necrotic elements. Adamkiewicz believes that he has rendered a double service to science and humanity in publishing the results obtained by him in the treatment of cases of cancer by cancroine. Four recent cases are described, all of them purporting to be cases of cancer of the esophagus. The first patient was a man sixty-six years of age, with a three-months' history of increasing dysphasia and emaciation. Even small bougies were obstructed at the lower end of the esophagus, 42 cm. from the dental arch. Six days of treatment by injections of cancroine produced a notable functional improvement and at the end of this period a sound of 5 mm. diameter could be introduced into the stomach. As the disintegration of epithelial cells in such a brief period is inconceivable, Adamkiewicz believes that carcinomatous growths are made up of protozoa. In a second case symptoms of stenosis were rapidly disappearing under the influence of injections of cancroine when the treatment was interrupted. Dysphagia at once returned. A short time afterward the injections were resumed and within two days an amelioration of the patient's condition was re-established.

DERMATOLOGY.

Oidiomycosis of the Skin and Its Fungi.—Since attention was called to the existence of blastomycetic dermatitis in Chicago and vicinity by Gilchrist the number of cases observed has rapidly multiplied. As the result of a detailed study of a number of such cases H. T. Ricketts (Jour. Med. Research, Dec., 1902) concludes that the so-called protozoic disease of Posadas, Wernicke and others, Busse's and Curtis' saccharomycosis hominis, and Gilchrist's blastomycetic dermatitis are various manifestations of the same disease. The condition in the skin possesses constant clinical and histological characteristics which separate it positively from all other skin diseases, particularly verruca, tuberculosis, carcinoma and syphilis. The organisms isolated from various cases differ from each other in minor respects, but are so closely related morphologically and biologically as to justify their inclusion in a common genus. They are thus analogous in a

pathogenic sense to the fungi which cause actinomycosis and to those causing trichophytosis. The variations among the organisms allow the recognition of three morphological types: (1) Blastomycetoid (yeast-like); (2) oidium-like; (3) hypomycetoid. There are two histological forms of the disease in the skin, the eosinophilous and the non-esinophilous, the former being associated with the mold form of the organism. Oidiomycosis is an appropriate name for the conditions caused by the organisms and oidiomycosis cutis for the disease as it occurs in the skin.

MEDICINE.

Chorea and Helminthiasis.—The obscurity in which the pathogenesis of chorea lies is evidenced by the many theories concerning it; its origin has been variously considered as rheumatic, nervous or infectious. M. de Luna (Gazz. degli Osped., Jan. 12, 1902) has noted a certain relation between helminthiasis and chorea. In a case recently observed, microscopical examination revealed ova in the feces, and the administration of anthelmintics was followed by the expulsion of three ascarides and many segments of tinea solium, with the result that there was entire abolition of choreic symptoms.

Membranous Colitis.—Membranous colitis is a disease which in most text-books has generally been dismissed with a few words relative to the "membranes." That it is, however, a disease of very wide distribution and often of great diagnostic importance is growing to be more and more thoroughly appreciated, in consequence especially of the efforts of the latter-day functional school in medicine. The subject has been treated in his characteristically broad, yet thorough, fashion by M. Foster (Edin. Med. Jour., Feb., 1902). The name of the disease is, in his opinion, to a certain extent a misnomer, since literally it embraces only those typical and unmistakable cases in which true fibrinous casts are passed from the bowl, whereas these represent only the *terminal* stage of the disease. The earlier stages of such cases, however, and milder types, also, of the affection, illustrate every variety of mucous discharge; all of these conditions, therefore, are to be considered as having a common clinical basis. There are three cardinal symptoms of the disease: Passage of mucus, irregularity of the bowels, and abdominal pains. The distinguishing feature of the disease really consists in the character of the stools. The mucus may be present in every variety of form.

In the class of milder cases there are scybalous masses. Their presence often leads to an incorrect diagnosis, the case being considered as one of catarrhal colitis whereas it probably is a case belonging to the class of mucous colitis. The feces may be merely coated with a glairy film; such cases are very apt to be mistaken for examples of mucous colitis and therefore wrongly treated. In the more advanced stages of the disease, mucus may be passed separately, either in small globular lumps resembling frogs' spawn, or as large solid lumps like pieces of jelly-fish. In the most marked cases, the mucus is condensed into membranes, which may be passed as annular casts of the intestine, or in loose shreds or strips. The membranes sometimes present an actual cast of the wall of the gut, in which the crypts of Lieberkühn are distinctly visible. Microscopically, these membranes consist of cells embedded in a transparent matrix, containing also phosphates, cholesterin crystals, and bacteria, the B. coli communis being in the largest proportion. In addition to mucus, in a few of these cases there is another foreign substance, namely, intestinal sand, which appears as brownish red particles, much resembling uric acid. This "sand" is rarely seen except in cases of membranous colitis, and may fairly be considered as typical of one form of the malady. As regards the stools themselves, they present no other constant characteristics. Turning to the second cardinal symptom, the majority of patients have suffered from constipation. Diarrhea occurs not infrequently, but it is of the irritative variety and does not serve to unload the bowel. Pain is at some time or other a marked symptom in most cases. It may vary in intensity from an attack of mild colic to pain of such severity as to suggest the possibility of perforation. It may take the form of erratic pains over the entire abdomen, or may be localized in the region of the ascending colon with tenderness in McBurney's point, or, finally, may mimic gastric discomfort. Very rarely it is absent. Physical examination reveals cutaneous hyperesthesia, or enteroptosis, etc., but nothing pathognomonic. Constitutional symptoms are slight. In some cases there is in each attack slight fever, the temperature during the period that membranes are being passed varying from 99° to 101°, or even 103° F. The pulse is changed only in relation to the fever or to extreme pain. During the attack, the tongue is generally coated, sometimes with thick white fur, but more commonly with a fine yellow layer. A characteristic and interesting feature of the disease is the fact that most of its victims suffer from neurasthenia, either of the moody or of the erethistic type. The nature of the disease is probably that of a secretory neurosis, finding its expression in hypersecretion of mucus, coupled with spastic constipation, whereby the mucus is molded in the colon into membranes. As has been said, sufferers from the disease are almost always neurasthenics, and the family history will generally show a marked neurotic taint. In addition, gout undoubtedly plays an indirect part in the causation of many cases. The patients are for the most part lithemic, and have the nervous instability so often seen in those derived from gouty stock. In the management of the disease, the first step should be the treatment of the neurasthenia. A proper amount of exercise should be taken, and the food should be selected with a view to eliminating all irritating constituents. To regulate the bowels, castor oil or enemata of olive oil are useful. During the attack, rest in bed and fluid diet are routine practice, and morphine may be necessary. Nerve tonics are often useful; nitrate of silver in doses of one-thirtieth of a grain is often of great service. In the more prolonged and hopeless cases, the performance of a right-sided colotomy is advocated, with a view to giving the bowel a rest. Operation should never be too long delayed, as, with all its discomforts, it affords a chance of escape from even greater miseries.

On Addison's Disease.—To determine if the blood of patients suffering from Addison's disease possesses toxic properties, J. Bruno (Münch. Med. Woch., Jan. 28, 1902) injected the blood-serum from a case of the more chronic form of the disease into frogs. A comparison of the results gives no difference between the toxicity of the patients' blood and that of normal serum. The author does not, however, consider his experiments conclusive and recommends that the blood of patients running a more acute course be tested in a similar way.

Etiology of Rachitis.—From the fact that in rachitis both the relative and the absolute weight of the thymus gland is below the normal, that the gland reaches its highest development when bone-proliferation is most active and that during this period it contains those salts which are most necessary for the building-up of osseous tissue, F. Mendel (Münch. med. Woch., Jan. 28, 1902) concludes that a close connection exists between the disease and the organ.

Viewed in this light the enlargement of the spleen might be considered a vicarious hypertrophy. Animals experimentally deprived of their thymus showed marked changes in the structure of the bones and the anemia and profuse perspiration so characteristic of rachitis could also be duplicated. Accordingly either fresh glands or the commercial tablets were tried in over 100 cases which were classified as follows: (1) Those which showed only the prodromal symptoms; (2) those in which deformity of the osseous system was the chief feature; (3) those marked by spasm of the glottis, and (4) those in which splenic enlargement was the most important sign. In all marked improvement was noted after from three to four weeks and dentition and the closure of the fontanelle proceeded satisfactorily. Unlike thyroid extract, no untoward symptoms are to be expected after even large doses.

Dyspeptic Asthma.—This term should be reserved for those cases of asthma which are free from any involvement of the chest organs and in which the affection is in distinct connection with the digestive apparatus. M. Einhorn (Jour. Amer. Med. Assoc., Feb. 1, 1902) divides these cases into two groups: (1) Those in which dyspeptic asthma appears periodically in an acute form; (2) those in which it assumes a chronic type. The first group is characterized by asthmatic attacks at more or less prolonged intervals, without apparent cause or after excesses in eating, drinking, or smoking, or after undue excitement. The attack is usually severe, often with extreme dyspnea, cyanosis, almost collapse. The second group embraces the larger number of cases and may again be divided into those in which the asthma appears soon after meals or those in which it comes on several hours later. The first class resembles and is often difficult to distinguish from angina pectoris but is more amenable to treatment directed toward the digestive apparatus. The angina, however, may be superadded and is then apparent by cardiac involvement, as indicated by the sudden appearance of albumin on the urine or irregularity of pulse, etc. Although no constant anomalies of the secretory condition of the stomach were found in his cases, yet a considerable number suffered from achylia gastrica or hyperchlorhydria, both conditions probably due to the undue irritation of the gastric mucosa. When the gastric secretion is normal it is necessary to assume a condition of hyperesthesia of the stomach to account for the cause. The so-called floating liver was also found in 17 per cent. of his cases and is also probably a factor. The treatment must be directed toward relieving any disorders of the digestive tract and also towards correcting any malpositions of the abdominal organs, principally the liver. Regular mode of life and avoidance of too much tobacco and alcohol, also of mental worry and strain, are essentials.

NEUROLOGY.

Meralgia Paresthetica.—This name is applied to a peculiar nervous disturbance manifesting itself in paresthesia, anesthesia and pain in the femoral course of the external cutaneous nerve. The paresthesia takes the form of numbness, pricking, formication, or a feeling of coldness, present, according to M. Kahane (Klin. therap. Woch., Jan. 12, 1902), in an area bounded in front by the middle of the anterior aspect of the thigh, behind by a line separating the external from the posterior surface, above by Poupart's ligament and extending below to within three or four finger-breadths above the condyles. The anesthesia shows itself subjectively by a sensation as if wool were present between the clothes and skin; objectively it is generally found to be only poorly developed, but also affects the temperature sense, though there may be hyperesthesia toward electricity. Sooner or later, pain will appear, generally after excessive use of the parts and never equaling in intensity the pain of tabes, so that such disturbances of function as limping hardly occur and a short rest causes their disappearance. Trophic disturbance, such as muscular atrophy, glossy skin, and vasomotor changes, are rare. General symptoms, more particularly inequality of the pupils and changed reflexes, have been included among the symptoms, but are more often to be ascribed to coincident, more serious nervous disease, such as tabes or general paresis. The etiology is to be found in local trauma, exposure to cold, infections, intoxications and dyscrasiæ, such as syphilis, typhoid and chronic alcoholism. Generally the patients are males between the ages of thirty and sixty years, who are obliged to stand or walk a good deal; often flat feet also are present. Two theories have been advanced to explain the condition—that of congestion of the nerve and that presupposing an active neuritis; a sufficient number of pathological examinations have not yet been made to decide the question, though the weight of evidence supports the latter. The course is chronic and intermittent, the diagnosis easy, and the treatment either medical and symptomatic or surgical by resection of the nerve.

SKIN AND GENITO-URINARY.

Ringworm.—Although ringworm of the skin is one of the easiest skin diseases to cure, rapidly disappearing under the action of almost any parasiticide, ringworm of the scalp or beard frequently taxes the ability of even the clever specialist for many months. G. T. Jackson (Med. Rec., Feb. 1, 1902) has been using a very simple but most effective remedy in these cases for two years and is highly enthusiastic over the result. A dram of the crystals of iodine is added to an ounce of goose grease and this preparation is applied to the affected areas twice a day till some redness and swelling appear. It is then applied once a day until a cure results. Goose grease seems to be an excellent penetrating excipient, but it is necessary to make sure that it is the genuine article. The hair falls out of the patch and epilation is not necessary. The first applications are apt to be a little painful for a few moments, but after that even little children do not complain of the pain. If much reaction with swelling is caused the use of the remedy can be suspended for a few days, and a salicylated oil of three-per-cent. strength can be used. As soon as the reaction subsides the iodine remedy should be resumed. Three weeks are usually sufficient to secure a cure of barber's itch and about the same time for ringworm of the scalp.

Syphilis Maligna and Syphilis Gravis.—The early appearance of numerous ulcerations over the entire surface of the body is the chief characteristic of malignant syphilis. Associated with this condition, says Lochte (Monatsh. f. prak. Derm., B. 32, No. 10) is a marked loss of strength. The patient becomes emaciated, loses his appetite, looks wretched. The painful ulcers prevent sleep and may produce fever which persists for months. The practitioner is struck by the inefficacy of the mercurial treatment in these cases. Cases of severe syphilis which approach the malignant form in virtue of their localization in vital organs or on account of their combination with other pathological conditions, or which in their specific manifestations resemble syphilis maligna, Lochte groups under the name syphilis gravis. The most dangerous chronic complication of syphilis is alcoholism. Phthisis threatens the life of the syphilitic individual doubly, for not

only does syphilis often assume a grave form when the complication exists, but the pulmonary disease makes rapid strides. Malaria and tropical anemia en- Harn- u. Sexualorgane, B. xii., H. 6) communicates age and pregnancy are also dangerous complications. None of these conditions, however, can be said positively to determine syphilis maligna.

Lesions of the Rectal Mucous Membrane as a Cause of Cystitis.—Wreden was the first to assert that lesions of the rectal mucous membrane in the vicinity of the prostate are invariably followed by cystitis, and the first to show that in cases of experimental cystitis in dogs the urine contains bacteria introduced into the rectum. Faltin (Centralbl. f. d. Krankh. d. Harn- u. Sexualorgane, B. xii., H. 6) communicates the results of his experiments on 100 dogs as follows: A lesion of the rectum in the vicinity of the prostate, whether superficial or deep, is not followed by cystitis, nor are intestinal bacteria found in the urine in these cases, provided the bladder at the outset is free from disease, and provided also that the rectal lesion is not followed by either general systemic infection or peritonitis. Serious lesions of the rectum may very readily produce general infection, however. Omitting cases of sepsis. Faltin was able to discover cystitis in only one of his many cases, and in but one case was there even a transient bacteriuria. Microscopic examination showed that following the slightest trauma of the epithelial surface of the rectum, numerous bacteria made their way promptly into the lymphatic spaces of the tissue surrounding the rectum, bladder, prostate and seminal vesicles. If the bladder be injured by retention at this stage, the pathogenic germs which are sojourning in the neighborhood may succeed in finding entrance and may thus set up a cystitis.

Gauging Vesical Capacity.—A method for determining the bladder capacity in patients in whom the nervous element is a serious factor for consideration —cases distinguished clinically by a lessened frequency of micturition at night—and in certain conditions in which rest is productive of similar improvement in symptoms, is submitted by G. F. Lydston (Jour. Amer. Med. Assoc., Feb. 8, 1902). This method does not err by proving only the capacity of the bladder while in hyperdistention. The patient is instructed to drink moderately of pure water during the evening, and, when aroused at night by a desire to micturate, to pass water on each occasion into a separate vessel. The greatest quantity obtained at any given micturition represents the maximum capacity of the bladder from a clinical standpoint. Cases in which the frequency of micturition is aggravated at night cannot be gauged in this way and mechanical means must be employed. The chief sources of error here are hyperesthesia of the prostatic urethra and consequent exaltation of the urinary desire, and also too rapid distention of the bladder, producing "surprise" and peremptory muscular reflex in the bladder-wall. The general excitability should be guarded against by sedatives and antispasmodics—a hypodermic of morphine, twenty to thirty minutes before gauging is useful. The local reflexes can be quieted by applications of eucain or cocaine to the prostatic urethra. Whenever, in gauging the bladder capacity, the urine returns at first with some degree of force, but loses this as the test proceeds, it may be safely assumed that temporary distention atony has been produced, and the test will require repetition at another time.

PHYSIOLOGY.

Leucocytosis after Violent Exercise.—The relation between physiological and pathological leucocytosis becomes of increasing interest as our knowledge increases. In order to elucidate to a certain extent this subject Ralph C. Larrabee (Jour. Med. Research, Jan., 1902) has made a study of the leucocytosis occurring in normal men as the result of violent physical exercise. The blood-counts were made within five minutes after the actual finish of a severe foot race of twenty-five miles. In every case a leucocytosis was found varying from 14,400 to 22,200. The differential count showed that the increase was mainly in the polymorphonuclear neutrophiles. The relation between the large and small mononuclear forms was changed, the proportion of large forms being increased. Eosinophiles were both relatively and absolutely diminished. In three or four cases a few myelocytes were found. No abnormalities were noticed in the red corpuscles. Since in this leucocytosis the percentage relations of the various leucocytes is altered from the normal it is certain that it is not physiological in character. More than one factor is concerned in the production of this leucocytosis—probably a temporary mechanical cause, and a toxic cause more slow to develop but lasting as long as the exercise continues.

THERAPEUTIC HINTS.

Muscular Rheumatism.—

℞ Baume de Fioraventi.....c.c. 20.0 (℥v)
Spt. camphoræ.....20.0 (℥v)
Spt. terebinth..... 3.0 (♏xlv)
Chloroformi ..... 5.0 (♏lxxv)
Menthol .....gm. 2.0 (gr. xxx)

Apply with light friction.

—G. Lyon in Le Progrès Médical, Jan. 4, 1902.

Chronic Malaria.—For enlargement of the spleen, rub in twice a day with friction the following ointment:

℞ Iodoformi .....gm. 3.0 (gr. xlv)
Ext. belladon..... 4.0 (℥i)
Ext. belladon ..... 4.0 (℥ij)
Ol. menth. pip.....gtt. xx.

and for the general condition take two of the following pills at noon and two at night before meals:

℞ Ac. arsenosi .....0.001 (gr. 1/60)
Iodoformi .....0.06 (gr. i)
Ferri et potass. tart.....0.06 (gr. i)
Ext. bellad.....0.03 (gr. iss)
Ext. quinquinæ.....0.06 (gr. i)
Quin. sulphat.....0.02 (gr. ⅓)
Ext. nucis. vom.....0.01 (gr. ⅙)
Ext. valerianæ.....0.06 (gr. i)

For one pill.

—M. Stephanopoulos in La Médicine Moderne, Dec. 25, 1901.

Veratrum Viride in Eclampsia.—Three cases of eclampsia in which the convulsions were promptly relieved by hypodermic injections of c.c. 1.3-1.7 (♏xx-xxv.) of the tincture of veratrum viride are described by A. Lapthorn Smith (Montreal Med. Jour., Jan., 1902). In one case half a grain of morphine had been injected, and an enema of a pint of salt solution given every two hours without effect. Vomiting was marked and the pulse excessively rapid, full and strong; following the veratrum the vomiting ceased and the pulse came down to fifty-six and was quite soft. A severe headache persisted, however. In the next case morphine and atropine had been given and a pint of blood removed from the arm, but the convulsions did not subside till an injection of veratrum was administered. In the third case three hundred grains of chloral and half a grain of morphine had been given in the course of four days, but veratrum was followed by very rapid subsidence of blood tension and the complete letting up of the convulsions.

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FATALITY AND EPIDEMICITY OF PNEUMONIA.

Sometimes even science may benefit by publicity. The series of pneumonia cases at the school at Groton was the main thing in the public eye for some time, because the President's son was one of the patients. These cases call attention to the possible element of contagiousness in pneumonia, so often noted, and it is to be hoped that the publicity given this idea will serve to make it popularly understood that careless contact with pneumonia patients, and especially with the sputum and other discharges, is not without a certain element of danger.

Dr. Lambert, at the recent meeting of the Section on Medicine of the New York Academy of Medicine, stated as his opinion that the concurrence of the series of cases of pneumonia at Groton was no more than a coincidence. The patients all suffered from frank lobar pneumonia of not very severe type. It was just the form of the affection that might be expected to occur in boys with opportunities to exercise freely in the open air during the changeable, yet always rather inclement weather of the last few weeks.

During the discussion on pneumonia at the Section meeting there was general concordance in the opinion that pneumonia may be epidemic and that its contagious character under conditions that involve crowding and close contact under somewhat unhygienic circumstances, as in barracks, jails, old hospital wards, camps and the like, is rather definitely established. Dr. Burt's suggestion as to the exercise of care in the disinfection of the sputum of the patient and conscientious precautions on the part of attendants to prevent dissemination of such material in any possible way may seem to some to push prophylaxis beyond actual knowledge.

There is no doubt, however, that this is the trend of the most conservative modern medical thought. Predisposition and infection may not often coincide in the persons of those in attendance on the patient, but the risk of such coincidence is sufficient completely to justify the ounce of prevention demanded.

Pneumonia, unlike most of the so-called ordinary diseases, is at the present time on the increase rather than the decrease. While the mortality from pulmonary consumption is notably less than it was a decade ago in most cities, the death-rate from pneumonia is alarmingly greater. This increase in the fatality of the disease has come during a period that has seen the general death-rate, in our larger cities especially, very materially reduced. The average length of life has increased in recent years from something over thirty-one years to nearly thirty-six years. Pneumonia continues its ravages, however, not only unimpeded but actually with additional virulence. Three forms of disease, pneumonia, heart disease and pulmonary consumption, are now the chief nursing sisters of death. Heart disease has become more amenable, at least to symptomatic treatment; consumption has been robbed of its worst terror—its presumed incurability; but pneumonia increases in frequency and fatality almost in a direct ratio with the density of population. As the near future is to see our population gathered more and more in crowded urban centers, there is good reason to take every possible precaution to prevent its spread. Many of the precautions now enforced with regard to other diseases would have been considered practically unjustified a quarter of a century or even less ago. Excess of prudence is not a fault to be compared with fatal relaxation of vigilance.

On the other hand, the picture of the present medical status of pneumonia is not entirely unrelieved. The principal reason for the greater frequency of the disease in recent years is the fact that sanitary science has kept alive many more individuals especially susceptible to the dis-

ease than was formerly the case. Weakling infants who perished in the annual visitations of gastro-enteritis in the summer, delicate children who succumbed to the acute infectious fevers in early years, are now preserved to be the victims of typhoid fever and pneumonia in adolescence. Adults who in previous generations did not survive the ravages of acute infections and gastro-intestinal disease in early and middle life, now live on to the fifth and sixth decades and it is on these especially that pneumonia preys. In a word, the prognosis of the disease is not worse in individual cases despite the increased mortality.

The prognosis of pneumonia really depends on what the patient takes into the disease with him. If his heart be already affected the outlook is indeed gloomy. If his kidneys be seriously affected the hope of survival is scarcely more promising. If the arterial system be degenerated by alcoholic excesses it is in the worst possible condition to respond to the sudden strains put upon it by the crises of the disease. Even in young adults the prognosis is not favorable if there has been a marked tendency to anemic conditions during adolescence that shows an unstable equilibrium of the blood and probably indicates a corresponding failure of the vascular system to develop. For such patients there is scarcely need to appeal to the status lymphaticus to appreciate the reason for the inevitable fatal termination, though this condition undoubtedly plays an especially important rôle in adding to the death-rate from pneumonia in the young.

Specific remedies there are none as yet for pneumonia. No form of treatment does more than aid Nature more or less effectively in the conflict with the disease.

If we are to see a reduction of the mortality from the disease, then, it must be by prophylaxis of the conditions that predispose to its development. There seems no good reason to doubt that the pneumococcus is almost universally prevalent in crowded places. When ventilation is insufficient the micro-organism either takes an additional virulence or the resistive vitality is so much lowered as to make the individual susceptible. For pneumonia cases, then, an abundance of fresh air is not only for the benefit of the patient, but also for the protection of those in attendance. It is the duty of physicians to make this clear to the public mind as well as to warn those especially who have once had pneumonia of the dangers of crowded places, theaters, churches, railroad stations, and the like. There seem to be great possibilities for good in these precautionary measures that will lessen the ravages of the worst of our present-day disease-scourges.

RECENT DEVELOPMENTS IN DIABETES.

The more carefully examinations of urine are made the more frequently are unexpected cases of diabetes mellitus discovered. The number of applicants for life insurance refused in this country every year because of the discovery of an unsuspected glycosuria is constantly growing. There was a time less than ten years ago when diabetes mellitus was supposed to be much more rare in this country than in older countries, but recent statistics are dispelling this illusion. Cases were overlooked a few years ago because of faulty methods of diagnosis that now help to swell mortality reports. Diabetes is increasingly interesting as the new century begins, because of the realization of its commoner incidence than hitherto supposed and because of the mystery that continues to shroud its essential pathogenesis in spite of recent advances in nosology. The discussion of diabetes itself at the January meeting of the New York County Branch of the State Medical Association and of diseases of the pancreas at the annual meeting of the Medical Society of the State of New York brought out some points that are distinct additions to our knowledge of the disease.

One of the most interesting questions with regard to diabetes is its possible contagiousness. In many hundreds of cases the disease has been reported as occurring in both husband and wife, and in rarer, though still quite frequent cases, in members of the same household, sometimes even when not related by blood. The well-known family tendency to the disease would, of course, vitiate any claims made on the coincidence of the disease in the cognate. Careful collation of German statistics seemed to show, however, that conjugal diabetes—that is, glycosuria affecting both husband and wife—occurs in less than 2 per cent. of all cases. This minimum of possible communication would seem to preclude all idea of contagiousness. Coincidence and the influence of very similar modes of life would serve to account satisfactorily for perhaps a greater percentage of incidences of the disease in people living together.

Dr. Abraham Mayer reported at the meeting of the New York County Medical Association a series of cases not yet formally published that materially lessens the force of this objection to the theory of possible contagiousness. If the

urine of the supposedly well marital partner be examined as a routine practise in all cases, when diabetes in husband or wife comes under observation it will be found to contain sugar in at least 6 to 8 per cent. of the cases. This proportion is to say the least a complete justification for suspicion of the communicability of the disease and points out the necessity for further careful investigations along this line. We pointed out editorially in the Medical News about a year ago that the *a priori* assumption on general principles that diabetes was not mildly contagious might readily lead to sad results, while the opposite opinion could only be productive of good and would prove a stimulus to investigators.

As was well brought out by Drs. Thayer and Blumer at the recent meeting of the State Medical Society the pathology of diabetes has been very strikingly illuminated by certain American observations during these last few years. Opie at Johns Hopkins has pointed out the significance of degeneration of the islands of Langerhans in the pancreas in diabetes. If these observations are confirmed they will do away with all the difficulties hitherto associated with the problem of the connection between the pancreas and true diabetes. These structures are not connected directly with the glandular canals of the pancreas, but are in intimate relation with a special arrangement of blood-vessels not unlike the vascular supply of the glomeruli of the kidney, or the Malpighian bodies of the spleen. This histological peculiarity stamps the islands of Langerhans as being associated with the internal secretion of the pancreas. Several years ago Prof. Hansemann of Berlin pointed out that even when the pancreas seemed entirely degenerated portions of healthy pancreatic tissue remained. It seems not unlikely that when the secretory gland substance undergoes extensive degeneration beginning in the pericaudicular portions, the outlying parts of the pancreas, distant from the ducts as are the islands of Langerhans, frequently escape destruction. This accounts for the number of cases in which, despite seemingly complete degeneration of the pancreas as a gland, diabetes did not occur. The reason was that the internal secretion had not been interfered with.

On the other hand degeneration of the islands of Langerhans without affection of the rest of the gland has been found by Opie to occur and these are the cases in medical literature in which diabetes has been reported without any lesion of the pancreas. The lesion might easily escape notice because of the comparatively small space occupied by these collections of specialized cells. When neoplasms have caused apparently complete obliteration of the pancreatic tissue it is not unlikely that some of the islands of Langerhans escaped the invasion of the malignant growth or else the malignant cells themselves, though not true glandular cells, supplied the function of the gland cells from which they are separated by but a generation. It has been known that metastatic cancers of the liver deposited in distant tissues produced bile and a corresponding activity is not too much to expect from pancreatic cells similarly degenerated.

Quite recently a rather surprising observation has been made almost simultaneously in Europe and this country with regard to the effect of injections of suprarenal substance in producing glycosuria in animals. Dr. Blum reported in the *Deutsche Archiv für klinische Medicin,* October 30, 1901, a series of successful experiments in this line. Dr. Croftan, working in the Woodward Fellowship for Physiological Chemistry at the Pepper Laboratory of the University of Pennsylvania reports in *American Medicine,* January 18th of the current year, a number of observations of the same kind undertaken when nothing was known of Blum's work. Croftan is inclined to the opinion that the glycosuria observed by him in animals after the injection of suprarenal extract depends on the action of a diastatic ferment in the suprarenal gland which converts the glycogen of the liver into sugar. In the first formal scientific communication made as the result of work done under the auspices of the recently-founded Rockefeller Institute for Medical Research which the Medical News had the privilege of publishing in the issue of February 1, 1902, Drs. Herter and Richards of New York entirely disagree with Croftan's conclusions. As they point out, Takamine's method of preparing adrenalin almost precludes the possibility of an active diastatic ferment remaining in the finished preparation, since the heat employed to get rid of albuminoid substances, an exposure to 90° to 95° C. for an hour, would make the continued existence of such a ferment extremely unlikely. On the other hand, the injections of adrenalin seem to produce changes in the pancreas that stamp the resultant glycosuria as really of pancreatic origin. The changes noted in the pancreas involve especially the cells of the islands of Langerhans, affecting these much more than the acinous gland-cells. This work, then, would seem to con-

firm Opie's observations rather than controvert them and throws light on the pathogenesis of diabetes rather than adds to the mystery as was at first thought.

At the recent meeting of the State Medical Society at Albany Dr. Chittenden of Yale suggested that the effect of suprarenal extract upon the blood-pressure might well be the secret of its causative influence in glycosuria, since it was already known that disturbances of blood-pressure often led to at least a temporary appearance of sugar in the urine. This last striking observation with regard to the suprarenal will doubtless serve to supplement Opie's work and at length solve all the pathogenetic mysteries that have so long been grouped around diabetes. The outlook is certainly most promising and it is a source of no little pride and inspiration that some of the best of this work in diabetes has been and is being accomplished here in America. *Macte virtute!*

"GLASSING" A SIGN OF NATIONAL DEGENERATION.

"Fightin' all day, Sir, and never saw a Boer. Yas, Sir, we simply blazed away at the kopjes on the chance of hittin' a Boer or two." In a trenchant article on recent ophthalmic work in the British Army, Dr. John Grimshaw tells us that this was a very frequent statement from the invalided South African soldiers on being asked whether their eyes had given them trouble when shooting on the veldt. American military surgeons also had occasion to direct careful inquiries into the relation of vision to efficacy in the various departments of the Army and Navy in our recent war with Spain.

Because of the interest shown in these two countries, it can but prove profitable to compare the standards of vision established in Continental Europe with those in force in England and America. For this purpose one cannot do better than turn to an article on "Standard of Vision" by Captain Miles Standish. In the first place the enlisted European conscript is permitted to wear glasses; this, except under quite unusual conditions, is prohibited in England and America.

In the French Army regulations of 1894, which are at present in force, the requirement of vision after correction of myopia is ½ with both eyes together, and not less than $^1/_{10}$ in the poorer eye; in cavalry and artillery, normal vision in one eye and not less than ½ vision in the other.

In Italy the Royal decree of September 26, 1881, rules that reduction of vision to ⅓ the normal in the right eye, or to $^1/_{12}$ in the left eye, although vision in the right eye is up to normal, if caused by organic changes or incurable disorders of the globe of the eye, a very important qualification, incapacitates for military service. The latest Belgian regulations determine that reduction of vision in the right eye to ⅓ of normal causes exemption from service, although reduction of vision below this limit in the left eye does not exempt from duty. The Swiss Army regulations for the minimum of vision for the artillery is normal; for the infantry ⅗, and for all other troops ½. Whenever the vision in one eye is normal, vision in the other may be as low as ⅛; but these conditions do not allow men to be employed as riflemen unless the eye with normal vision is the right eye. The rules in the Danish Army exclude from military service all men having vision below ⅕.

These standards are too low to be brought into relation with those employed in the examination of candidates for the United States Army, which, as would be expected, are by long odds the highest in the world. They are $^{20}/_{20}$ in *each* eye, without glasses. That this standard is unnecessarially high may be judged from the fact that when, upon the outbreak of the late war, large numbers of members of the National Guard were rejected for "physical disability" by the United States examining officers, the natural inference among the laity was that the State troops were mostly cripples and invalids. A $^{20}/_{20}$ vision would theoretically enable the soldier to see a man six feet high at a distance of 1,375 yards, but as a matter of fact, owing to atmospheric and other conditions, a man could not be distinguished at any such distance.

In England it would seem that, while the visual tests are probably grossly tampered with by bribing and other nefarious methods, and while, as is frequently the case, the Englishman has a more or less archaic method of estimating the eyesight, it might be interesting to question whether in the last forty years the national eye, if one may use the term, has become dimmed and whether the lamentable picture of Thomas Atkins shooting at kopjes in lieu of Boers is a result of *this* or of faulty or mismanaged examination. Grimshaw asks why, if the War Office grant artificial teeth to men who are likely to become efficient soldiers, should spectacles be withheld?

There is little doubt that England will soon realize that she must take her place in company with the Continental people and furnish glasses as they do. Obviously this is an admission that

she has in the last half century lost ground physically. It would seem in retrospect that this question of eyesight in the Army affords a tolerable insight; a sort of indicator to the well-being of a nation. Continental Europe has "glassed" a large proportion of her soldiers, this proportion increases from day to day and it is noteworthy that the ratio is highest in the poorest lands. Lord Kitchener's strictures on the physical unfitness of the proud Imperial Yeomanry show that even they, in company with the rest of the British Army, must submit to the wearing of glasses or fail in the race. The yeoman is extinct.

Our own authorities ask for a lowering of the standards. If these premises be true, how long, one can but ask, ere our proud standard must fall, crushed, with many other good things by the onward march of "civilization"? How soon will the "glazing" of our iron regulars proclaim to the world our national decay? When will our $^{20}/_{20}$ standard be borne by that same westward tide to the vigorous New World which, portend says, will one day take life in the dead East?

ECHOES AND NEWS.

NEW YORK.

New Pest Houses.—Commissioner Lederle is planning five new hospitals to serve for smallpox patients, one for each of the boroughs.

Offers $5,000 to Hospital.—Mrs. John H. Burtis, President of the Board of Managers of the Memorial Hospital for Women and Children, Brooklyn, has told the hospital staff that if it will raise $15,000 to meet the immediate debts of the institution and guarantee to pay the remaining debts, which amount, it is said, to $15,000 more, she will give $5,000 additional to the hospital. Mrs. Burtis announces that she is anxious to retire from the head of the institution, and go abroad for a year's rest and recreation. There has been some difference of opinion among the managers of the Memorial Hospital as to the desirability of maintaining the institution exclusively for women.

Nervous Disease Ward.—The Post-Graduate Medical School and Hospital, Second Avenue and Twentieth Street, received last week a gift of $25,000 from Mrs. Hannah N. L. Sherman, of Lawrence, Long Island. This money is to help support a new ward for women and children afflicted with nervous diseases. The ward is to contain fourteen beds, five of which will be supported in perpetuity by Mrs. Sherman's gift. The sum given is not enough in itself to support an entire ward, but makes it possible to devote one entirely to patients suffering from those particular diseases. It will be the only one in the city. The naming of the new ward has been left to Mrs. Sherman, and she has decided to call it the Hope Ward. The five beds will be called the Lawrence beds.

German Medical Society.—At the next meeting of this society on March 3d, Dr. Willy Meyer will read a paper on "What Can be Diagnosed in Acute Appendicitis." Dr. T. W. Bandler will show a case of "Chorioma Uteri, with Microscopical Demonstrations."

Resolutions on the Death of Dr. Munde.—"Death has taken our beloved teacher, friend and helper, Dr. Paul F. Mundé, in the fulness of his fame and power. His universal kindness, his never failing courtesy, his generosity, and, above all, his loyalty, rendered him dear to every member of the Mount Sinai Alumni Association. We shall never forget the lessons learned at his hand, and enforced by his precept. We are better physicians and better men for having lived in close contact with him. In the sorrow that we personally feel we extend to the family our sympathy, most heartfelt and sincere, realizing however that it is impossible 'to gild a grief with words.'"

Committee. { Samuel M. Brickner, M.D., Albert A. Berg, M.D., Charles Goodman, M.D., Martin M. Ware, M.D.

Honor to Dr. Charles Rice.—The movement set on foot by the leaders of the pharmaceutical profession to honor by some fitting memorial the memory of Dr. Charles Rice, late of this city, is well under way and should be liberally responded to by physicians throughout the country. The raising of the standard of the pharmaceutical profession and the present high standard set for the preparations of the Pharmacopœia are largely the results of Dr. Rice's activity.

Research Work at the New York University.—The reports of the laboratories of physiology, chemistry, bacteriology, and pathology, in the Medical School, recently made public, are remarkable as indicating a marked increase in the amount of research work performed. Eight monographs on research subjects have been published from the physiological laboratory during the past year, while the pathological laboratory in the same period has the record of 264 autopsies in gross pathology. Two hundred and sixty specimens were prepared for the Pathological Museum, and 600 specimens illustrating various forms of disease were received from the New York Hospital. The clinical laboratory made 2,532 examinations, of which 1,872 were for classes in the dispensary and 610 for the Bellevue Hospital.

Appointment of Dr. Magill.—Dr. William S. Magill has been appointed research assistant in the laboratory of bacteriology of the University and Bellevue Medical College. Research for the present year in this laboratory will be made in the etiology of smallpox and the chemical products of milk bacteria.

Pneumonia Very Prevalent in New York City.—There has been an unusual increase in the number of deaths from pneumonia and other diseases of the respiratory organs in the last four weeks. During the week ending February 15th, according to the Health Department, there were 334 such deaths, and in the following week, ending February 22d there were 353. In the corresponding week last year there were only 243 such deaths. The increase is said to be due to the epidemic of measles, as cases of that disease frequently develop pneumonia.

Buffalo and the Social Evil.—After a conference between representatives of the Anti-Saloon League, District Attorney Penney and Superintendent Bull of the Police Department in the District Attorney's office of Buffalo, February 22d, the Anti-Saloon League authorized the issuance of a statement in which it conceded that it was impossible to stamp out the social evil and therefore made a compromise. The statement was issued in the name of the Executive Committee of the Anti-Saloon League, consisting of Byron H. Stauffer, O. P. Gifford and John F. Brant, all ministers; District Attorney Penney and Supt. Bull. It was in part as follows: "We realize that the city of Buffalo, during all the years of her history, has, like all centers of population, been compelled to face the problem of the social

evil, together with the various kinds of vice accompanying this evil. We are not desirous of attempting the impossible task of eradicating these evils, for we believe that in attempting this task we would so scatter the vicious element as to aggravate the condition which we have been attempting to ameliorate. We agree that all thoroughfares shall be free from this element, and that it shall be confined to a definite and limited area not traveled by the general public."

Manhattan Dermatological Society.—A regular meeting of this society was held Friday, February 7, 1902, at the residence of Dr. C. A. Kinch, 273 West Seventieth Street, with Dr. W. S. Gottheil in the chair. Dr. J. Sobel presented a case for diagnosis: the patient presented himself at the clinic and a diagnosis of grippe was made; the body showed a morbilliform eruption; the question of rötheln, erythema multiformis, dermatitis medicamentosa, or a dermatitis complicating grippe was considered by the speakers. Drs. Cox and Kinch believed it to be a case of dermatitis medicamentosa. Dr. Bleiman said that the initial symptoms spoke as well for measles as for grippe and the appearance of the eruption favored the diagnosis of measles. Dr. Gottheil could not positively exclude measles; the presence of eruption before medication excluded dermatitis medicamentosa. Dr. Sobel did not regard it as measles owing to the absence of catarrhal symptoms of involvement of face and of Koplik's spots, but strongly suspected grippe with a complicating dermatitis.

Dr. Gottheil presented a case of folliculitis decalvans in a woman about forty years of age. He said that it was unusual for it to attack the scalp alone, and he considered this case as a non-parasitic sycosis. Dr. Sobel spoke of the treatment as it applies to children; Dr. Cox discussed the treatment of adult cases and spoke highly of balsam of Peru. Dr. Abrahams said that acute suppurative folliculitis of the scalp was rare in adults, but common in children. Dr. Bleiman spoke of the similarity of this disease to sycosis barbæ and advised complete epilation and antiparasiticides.

Dr. Gottheil presented a girl of twelve years with two distinct eruptions; one consisted of oval scaly patches upon a hyperemic surface seen on the chest and left iliac region; there was also some scaling on the scalp; this he regarded as a psoriasis; the second was a dark mottled eruption (pigmentation), macular, seen on the back and abdomen, which had been present for two years; the origin was unknown; there was no history of a previous eruption. Dr. Sobel thought the pigmentation of second eruption might be due to maculæ cœrulæ. Dr. Oberndorfer regarded the first as a psoriasis in an unusual location and the second as probably due to arsenical treatment for a previous acute or chronic condition. Drs. Cox, Kinch and Abrahams believed a previous eruption had in the process of healing left this discoloration; the first eruption was regarded as psoriasis.

Dr. Bleiman presented a case for diagnosis: a woman twenty-one years of age, married; eruption present since birth; face is red and hyperemic; the entire body shows scaling to a marked degree; on the feet and lower limbs the epiderm can be peeled off in large patches, leaving a slightly hyperemic base; the skin is thick and dull; patient gave birth to an 8½-months fetus similarly affected; it lived fourteen days. Presented with a probable diagnosis of dermatitis exfoliativa. Drs. Oberndorfer and Abrahams called it a marked case of ichthyosis. Dr. Sobel was not willing to call it dermatitis exfoliativa, but did not classify it as an ichthyosis. Dr. Franklin thought it was dermatitis exfoliativa. Dr. Gottheil spoke against such a diagnosis; he believed it to be ichthyosis. Dr. Bleiman further stated that the history and well-being of the patient did not correspond with the picture of dermatitis exfoliatus, yet he looked upon the case as interesting from a diagnostic point of view. If it was ichthyosis it surely was a very unusual case.

Dr. Abrahams presented a case of mild ichthyosis; the eruption at one time covered the entire body; at present it is seen in patches at various points of the body; the eruption was not observed until after an attack of measles five years ago (boy is now eleven). Dr. Abrahams presented a case of non-congenital ichthyosis, believing measles to be the causative factor. Drs. Cox and Sobel believed all cases to be congenital; the early manifestations are slight and are readily overlooked. Drs. Oberndorfer and Bleiman called it a mild case; in some places it resembles keratosis follicularis. Dr. Gottheil believed both conditions to be present; pathologically both conditions are closely allied; he does not look upon the acute exanthemata as etiological factors.

Dr. Abrahams presented a case of inguinal tertiary bubo (bilaterial). At first the left side was affected, then the right became involved; the buboes attained the size of an orange and were uninfluenced by any teratment until antisyphilitic medication was inaugurated. There was no history of gonorrhea, chancre, or wound; the abdominal and thoracic organs were normal. The patient began to improve only when placed on mercury and the iodides. He regarded this as a rare affection, yet felt tempted to make such a diagnosis owing to its rapid improvement under antisyphilitic treatment, other methods failing. Dr. Gottheil said that unilateral gumma (inguinal) was rare and double gumma extremely so; he considered the source of infection to be the urethra; its response to mercury and the iodides does not necessarily stamp it as specific. Dr. Bleiman mentioned a case of traumatic bubo, in which syphilis was excluded, which got well under antisyphilitic treatment. Dr. Cox agreed with Dr. Abrahams. Dr. Sobel thought that a urethral chancre with secondary symptoms may have been overlooked by the patient and so he considered the bubo as a secondary glandular involvement.

PHILADELPHIA.

University Can Build Veterinary Hospital.—Residents of the locality near Thirty-ninth Street and Woodland Avenue have objected strenuously to the erection of a veterinary hospital by the University in lieu of the old one torn down at Thirty-sixth Street to make room for the new medical laboratories. It was claimed that the act referring to the erection of hospitals in built-up portions of the city applied, but application to the State for an injunction has been refused by the Attorney-General. No reasons for the decision are given.

Typhoid and Smallpox Decreasing.—New cases of typhoid and smallpox for the week ending February 22d were 83 and 63, as compared with 157 and 74 for the preceding week. The greater number of the new cases of smallpox are coming from the northeastern section of the city, where very many of the mill operatives, a large portion being English persons, refuse to be vaccinated. Fourteen cases occurred at the same time in one block among these people.

Changes in Hospital Staffs.—Dr. George E. de Schweinitz, for several years professor of ophthalmology in the Jefferson Medical College, has been elected to succeed the late Dr. Norris as professor of ophthalmology in the University of Pennsylvania. Dr. S. Weir Mitchell, who has been for thirty years associated with the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, has resigned as senior physician,

and will serve only as one of the consultants. In this hospital was begun the first distinct clinic for nervous diseases in this country. Dr. John K. Mitchell has been elected to the vacancy caused by his father's withdrawal. Dr. J. Madison Taylor has also resigned his position as assistant physician of the institution. Dr. D. D. Stewart has resigned as professor of diseases of the stomach and intestines at the Philadelphia Polyclinic, and Dr. Joseph Sailer has been elected as his successor.

Officers of Neurological Society.—Officers of the Philadelphia Neurological Society for the ensuing year are: President, Dr. J. K. Mitchell; Vice-Presidents, Drs. F. X. Dercum and Joseph Sailer; Treasurer, Dr. Guy Hinsdale; Secretary, Dr. A. A. Eshner; Councillors, Drs. D. J. McCarthy, W. G. Spiller and W. C. Pickett.

Address by Dr. Roswell Park.—Dr. Roswell Park of Buffalo delivered an address at the University of Pennsylvania, February 19th, under the auspices of the Charles K. Mills Neurological Society. Dr. Park congratulated the students on the excellent instruction they are receiving, and stated that for that reason he need not confine his remarks to a strictly medical subject. He therefore spoke on "Student Life in the Middle Ages," depicting the manners, customs, and life of the early university students. Their requirements and disadvantages were compared with the present fortunes of students, many incidents illustrative of the life of those times being given. The origin of the customs of dueling, hazing, and fagging were described. After the address a reception to Dr. Park was given at the Roosevelt.

Philadelphia's Water Filtration.—At the meeting of the North Branch of the County Medical Society, held February 20th, Mr. John W. Hill, the engineer in charge of the construction of the Filtration Plant of Philadelphia, read a paper entitled "The Results of a Year's Experimentation with the Filtration of Philadelphia's Water." The author referred to the pecuniary loss resulting to the city from an epidemic of typhoid, and stated that during a year when only a moderate number of cases of this disease were observed the loss would far exceed what it would cost the city to build a filtration plant. Various instances were cited in which the reduction of this disease has exceeded eighty per cent. in the cities which have established filtration plants, since they were put in operation. The various kinds of filters that have been in operation were described and it was stated that the best results have been obtained by first passing the water through a roughing filter, or preliminary filter, constructed of broken stone or slag, varying in size from ¼ to 1½ inches. By this method the final filters can be run at a rate about twice as great, and the expense of cleaning the sand is thus correspondingly reduced. The roughing filters are simply cleaned by flushing, while in the final filters the sand must be taken out, scraped and restored at considerable expense, which is a very great item in favor of the use of the preliminary filter. Numerous tests have been made with different filters by applying waters of different grades of turbidity and containing larger or smaller amounts of bacterial contents, and the reduction in both has almost uniformly been about ninety per cent., in some cases being as high as ninety-seven per cent. Experiments have been made with the waters of both the Delaware and Schuylkill Rivers, the water of the former being the purer. One of the most difficult problems encountered is the removal of the bacillus coli communis. Water containing various amounts of these germs has been tested and, as a rule, there is no evidence of the germ in the filtered water. One difficulty that confronts this work is the fact that during the time when the water in the Delaware River is very low it contains an exceedingly large amount of chlorine, but this is not believed to be sufficient to affect the palatability of the filtrate. Experiments have been made to determine the effect of an elastic mattress covering over the tanks, but this has not seemed to be of any value. One of the principal factors in the successful running of a filter is to keep it at a steady rate. Statistics were given comparing the death-rate of the different cities using filtrated water and those using spring water; in those of the latter class it was shown to be uniformly higher. Dr. James M. Anders opened the discussion and gave an account of the various epidemics of typhoid fever, which have occurred in this and other cities, the majority, if not all, of which he believed could be traced directly to the water-supply. He spoke upon (1) conditions and diseases caused by the use of impure water, and (2) the effect of slow sand filtration as a means of minimizing the prevalence of these diseases. He stated that he believed impure water was responsible for many of the diseases of the alimentary tract, and disturbances of bowels and stomach, in addition to being the direct cause of the outbreak of an epidemic of an infectious disease in many instances; he cited in support of this theory the cholera epidemic of Hamburg in 1892, the epidemic of typhoid in Plymouth, Pa., and various others, many of which, in his opinion, could have been avoided had the cities been supplied with filtrated water.

Dr. D. H. Bergey who has had considerable experience in filtration work, stated that he believed the introduction of filtrated water into Philadelphia would be followed by a very marked decrease in typhoid fever and the kindred diseases. Dr. Samuel Wolfe referred to the fact that the impure water furnished the population of the city at the present time had been the cause of an enormous consumption of various mineral waters and bottled waters, as well as being in his opinion responsible for a certain amount of the alcoholic beverages consumed.

CHICAGO.

Reforms at Dunning.—The County Commissioners are planning many reforms at the county institutions, which include a reorganization and enlargement of the medical staff, relief of the overcrowded condition of the hospital for the insane, and eventually the erection of a series of cottages to replace the present building.

Annual Meeting of the Chicago Eye, Ear, Nose and Throat College.—The faculty held its meeting February 10th. The following were named as Board of Directors for the ensuing year: Drs. William A. Fisher, President; A. G. Whippern, Vice-President; John E. Hoffman, Secretary; Thomas Faith, and H. W. Woodruff.

Alumni Week.—The faculty of the Northwestern University Medical School has set aside the week of June 16th as alumni week. There will be general and special clinics of all kinds, private operations, ward visits, ward walks; men of international reputation will hold clinics at Mercy and Wesley Hospitals, and the alumni will be given special opportunity to see and study cases. It will be a week of concentrated post-graduate work.

Smallpox not Feared.—Having successfully set in motion the agencies for the suppression of smallpox in the territory surrounding Chicago, the Health Commissioner, Dr. Reynolds, refers in this week's bulletin to certain other affections of far more importance as causes of the city's mortality. Scarlet fever, for example, had 924 victims during the last three years in this city, while there have been in the same time only

7 deaths from smallpox. The same is true in regard to influenza and pneumonia, both infectious diseases, and as such legitimate subjects of study. Within the last dozen years influenza has taken a place, if not as one of the principal causes of death in itself, at least as leading to mischievous complications, notably pneumonia, the deaths from which in Chicago have increased more than 50 per cent. since the influenza epidemic which began in the fall of 1889.

Consumption is in Check.—Consumption is being dealt with by a number of agencies and there is little left to learn, but much to do in the practical application of existing knowledge acquired by thousands of investigators. It is substantially in check, if not yet materially diminishing. On the other hand, cancer is increasing with frightful rapidity. In the decade ended in 1870 there were only 7.3 cancer deaths in every 1,000 deaths from all causes in Chicago. In the decade ending in 1900, there were 28.9 such deaths in every 1,000, an increase in thirty years of more than 80 per cent. Last year there were 1,003 deaths from this disease in a total of 24,406 deaths from all causes, a proportion of more than 41 in every 1,000, instead of the 7.3 in the decade of 1870, of the 14.5 in that of 1880, of the 19.8 in that of 1890, and of the 28.9 in that of 1900.

Some Defects of Speech of Peripheral Origin.—Dr. William L. Ballinger read a paper on this subject before a meeting of the Chicago Medical Society, held February 19th. The etiology was presented under the following subdivisions: (1) Nasal conditions which cause defects of speech. The various pathologic lesions were such as produced nasal stenosis and consequent deadness or flatness of tone. The nasal resonance is impaired and the timber of the voice is marred. (2) Nasopharyngeal and faucial conditions, which cause defects of speech. These are chiefly adenoids, hypertrophied tonsils, adhesions of the faucial pillars to the tonsils, paralysis of the palatine muscles, cleft of the soft palate, etc. Here some of the muscles concerned in speech are interfered with, and the speech defect may be more marked than in the nasal conditions. If any of these lesions exist prior to the acquirement of language (say, before the fifth year), there are apt to be serious consequences to the further development of the mental as well as the speaking faculties of the child. Slight impediments to speech at this age are much more serious than the same impediments at a later period of development. The child has difficulty in articulation, of which he is made conscious by those with whom he associates. He becomes sensitive and morbid, seeks seclusion, and the speech centers and the other centers of intelligence lie dormant. He is liable to become an incorrigible or "backward" child. Training and the removal of the lesions causing the impediment will often result in astonishing improvement in speech and mental growth as well. (3) Lingual conditions which cause defect of speech. Adhesions of the faucial pillars to the base of the tongue; congenital shortness of the geniohypoglossus muscle; tongue-tie; hypertrophy of the tongue, etc., were given as etiological factors in defects of speech. (4) Laryngeal conditons which cause defects of speech. It was shown that if the different forms of laryngitis and neoplasms were excluded, there were few defects of speech of laryngeal origin. He referred to a want of coördination between the uplifting muscles of the larynx and the down-pulling muscles as causing a sibilant or falsetto voice. Especial emphasis was laid upon the interdependence of the development of the faculty of speech and the cerebral centers of intelligence. The muscular exercise of the organs of speech seems to have a marked favorable influence upon mental development; hence the great importance of early training and surgical correction of the peripheral lesions of the nose, nasopharynx, fauces, and larynx, diaphragm and chest. Attention given thus early would, in many instances, convert a backward child into one of usefulness and intelligence. (5) The lack of rhythm and control of the respiratory movements of the diaphragm were referred to as causing stammering. This condition is usually associated with a tuberculous condition of the patient, or with a family history of this disease.

Management of the Umbilical Cord.—Dr. C. S. Bacon read a paper on this subject. Nature's plan of removing the cord from the new-born child is by suppuration and inflammation. The method in common use is but little better than the primitive method of Nature. Careful study of the dangers that attend the methods of separating the cord and postmortem examinations of babies dying from two to four weeks after birth show that local inflammation of the navel and infection of the umbilical cord vessels are very common. Contrary to the common view navel cord separation is one of the most serious dangers that menace the new-born. Management of the navel according to surgical principles is possible and should be attempted. The cord may be severed close to the body or from two to three centimeters away from it. When a stump is left, antiseptic treatment is necessary. When amputation is done, asepsis should be striven for. In the first case alcohol is the safest and best antiseptic. It should be applied freely, especially at the junction of the cord and skin, before and after the daily bath. When the cord is tied at the junction of the skin and cord an effort should be made to keep the navel aseptic, therefore no bath should be given. The best plan is to cut the Wharton jelly at the base of the cord and strip it back like a cuff and tie the vessels with fine silk or catgut. Then the navel must be kept perfectly sterile. This can only be done by a physician who has some surgical experience.

Surgery of the Prostate Gland.—Dr. J. B. Murphy read a paper on this subject. The prostate is situated behind the triangular ligament and is in close contact with the rectum. The prostatic urethra occupies its second anterior fifth, being completely surrounded by it. It is possible to remove, therefore, only the lateral and posterior lobes of an enlarged gland and retain the urethra intact. The enlarged prostate, differing anatomically from the normal gland, encapsulates the neck of the bladder and protrudes into its cavity. Around the neck of the bladder, just above the urethra, is the internal sphincter, the tonic contraction of which, with the elasticity of the parts, prevents the escape of urine (Howell). The external sphincter of Henle, in the lower part of the prostate, may, also, aid. The prostate may be completely removed without loss of urinary control. The secretion of the prostate is necessary for fertilization, as it is essential to the motility of the spermatozoa. Practically nothing is known as to the cause of prostatic enlargement. Bangs says it begins before the fiftieth year. It is rare in the negro (Schultz). Benign enlargements of the prostate resemble, histologically, fibromyomata of the uterus. The enlargements may be incapsulated, but usually they are not. The growths may be subcapsular, intramural or submucous; usually they are intramural in the lateral lobes and submucous in the middle.

Indications for Prostatectomy.—(1) Pathologic enlargement, with urinary retention; (2) painful and frequent urination; (3) catheter life; (4) secondary cystitis; (5) pressure on the rectum. Suprapubic prostatecomy was first performed by Dr. Belfield, of Chicago, notwithstanding many statements to the contrary, and he deserves the honor of having first deliberately planned and executed this operation. The suprapubic

is the route which Dr. Murphy followed during ten years' service at the Alexian Brothers' Hospital. In this hospital enucleation or cauterization into the prostate or cauterization of the bladder folds was accomplished through a suprapubic opening. Proust describes a subtotal prostatectomy with subsequent suture of the pedicles. Dr. Guiteras collected 153 prostatectomies by various methods, of which 72.3 per cent. recovered, 11.2 per cent. were failures and 16.4 per cent. died. He concluded that the cures in this operation were better and more permanent than those following prostatotomy, though the mortality was greater than after the Bottini operation. In enucleating the lobes, Dr. Murphy uses sharp hooks after the capsule is opened to draw the prostate into the field and retain it there, and to invert the prostate while it is being detached from the bladder-wall from above downward. The anterior wall or isthmus of the prostate is never removed, as it never presents any material encroachment on the canal. The hemorrhage by the perineal route is much less than by the suprapubic. Up to the present time he has operated on 8 cases by the perineal route, employing the following technic: (1) Semilunar incision from ramus to ramus, convexity forward, down to capsule of prostate. (2) Prostate freed from its attachments to rectum by careful dissection. (3) Incision of capsule and shelling out of enlarged lateral lobe by blunt dissection from behind forward, using the sharp hook retractors to draw the mass out as rapidly as it is loosened from its capsular attachment. (4) Division of gland at junction of lateral lobe with isthmus, thus retaining anterior walls of urethra. (5) Same technic on other lateral lobe. (6) Removal of middle lobe if necessary, with the posterior urethra. (7) Permanent catheter, which is allowed to remain in place from eight to fourteen days. (8) Perineal drainage of bladder through tube, with gauze packing in perineal wound; these to be removed in from three to ten days. The difficulty of prostatectomy is in inverse ratio to its size. All of the eight cases have recovered and all have urinary control. All are relieved of retention symptoms and have dispensed with the catheters.

CANADA.

Hospital Donation.—G. B. Burland, Esq., of Montreal, has offered to be one of ten to subscribe $200,000 for a new building for the Montreal General Hospital of 100 beds.

Death of Dr. R. M. Bucke.—On the night of February 20th, Dr. Richard Maurice Bucke, Superintendent of the London Insane Asylum, accidentally slipped on some ice on the veranda of his residence, instant death resulting. Dr. Bucke was born in 1837 in England and was educated at McGill University where he graduated in medicine in 1862, gold medalist in his class. In 1877 he was appointed Superintendent of the London Asylum, which position he held up to the time of his unfortunate death. He was an eminent alienist and a lifelong friend and literary executor of Walt Whitman. Dr. T. A. McCollum, for twenty years a leading surgeon in the Niagara peninsula, has been appointed his successor.

Hospitals of Ontario Form an Association.—Representatives from the leading hospitals of Ontario met in Toronto during the past week and formed an association. For the past few years the funds of most of the hospitals throughout the Province have been falling off, owing in part to the fact that the Government had cut down the annual grant of 30 cents per patient *per diem*. An effort will be made to get the Government to increase the grant to 25 cents; and steps will also be taken to secure a proper measure of county and civic aid. A further feature of the new organization will be power to conduct provincial examinations for nurses' diplomas. The Association will meet annually in Toronto at the time the local legislature is sitting. Dr. John Ferguson, of the Toronto Western Hospital, was elected secretary and treasurer.

Appointments to the Free Consumptive Hospital at Muskoka.—At the last meeting of the Executive of the National Sanitarium Association, in view of the early opening of the Free Consumption Hospital in Muskoka and the establishment of a third institution near Toronto, the following twenty-five practitioners of Toronto were appointed on the visiting staff of the Association: Drs. W. B. Geikie, H. J. Hamilton, Gilbert Gordon, C. J. O. Hastings, W. T. Stuart, Allen Baines, J. T. Fotheringham, George A. Bingham, C. M. Foster, B. Z. Milner, F. N. G. Starr, William Oldright, T. F. MacMahon, A. McPhedran, W. B. Thistle, R. J. Dwyer, G. A. Peters, Graham Chambers, Andrew Gordon, Charles O'Reilly, D. W. McPherson, R. A. Stevenson, John Caven, A. J. McKenzie, and H. B. Anderson.

Toronto University Medical Building.—The Medical Faculty of Toronto University has decided to adopt the suggestions of the Honorable the Minister of Education with regard to the financing of the proposed new medical building. The Trustees of the University will advance the necessary $125,000 and the Medical Faculty will pay four per cent. annually on that sum. This arrangement will render any assistance from the Ontario Government unnecessary and will leave the Medical Faculty free to rent a portion of the building to the Arts Faculty or not as they see fit. It is understood that the proposition will be sanctioned by the Government.

McGill University.—The number of students in attendance at lectures this session in all the faculties reaches 1,114, as follows: Law, 60; medicine, 490; applied science, 254; arts, 294; veterinary science, 16. The University has been the recipient of large gfts during the past year. Those particularly concerning the Medical Faculty are as follows: By Sir William Macdonald, $60,000 to endow the chair of chemistry; $50,000 to endow the chair of botany; $20,000 to supplement the endowment of the chairs of physics bearing his name; $30,000 for storage batteries; the new medical buildings donated by the Honorable Mrs. Howard and Lady Strathcona. The revenue of the University during the past year inclusive of cash on hand, amounted to $393,552.90 and the expenditures, $341,756.97.

Annual Meeting Montreal General Hospital.—The annual meeting of the Governors of the Western Hospital, Montreal, was held during the past week. The retiring officers and staff were all reëlected. The only election was that for the position of assistant laryngologist, Dr. George K. Grimmer being the successful candidate. Dr. F. G. Finley, the Secretary, read the annual report. It stated that the ordinary income for the eight months ending December 31, 1901, was $50,183, and the expenditures $60,287. The medical report showed that the number of patients treated in the same time to a conclusion was 1,919. Of these 154 remained over from the previous year; 168 remained in the hospital at the end of 1901, and 1,933 new patients were admitted. There were discharged during the year 2,573 patients, and there died in the hospital 148. The death rate was 7.7 per cent. as compared with 8.5 for the preceding year. The average cost per patient *per diem* was $1.43. In the outdoor department there were 20,189 consultations.

GENERAL.

Phenacetin Patent Upheld.—On February 5th was brought to a termination an interesting case involving

the patent rights to manufacture phenacetin that has been in the courts for over ten years. The original importers, the Farbenfabriken of Elberfeld, have won the suit.

Retirement of Dr. Kinyoun.—Dr. J. J. Kinyoun, for the past year commanding officer and chief surgeon of the United States Marine Hospital at Detroit, and one of the ablest bacteriologists and most valued plague experts in the United States government service, has just sent in his resignation to the Surgeon-General at Washington, to go into effect May 1st. Dr. Kinyoun has been in the United States Hospital Service for about fifteen years, and during that time has been sent all over the world for the purpose of germ study. Dr. E. K. Sprague has been appointed to succeed Dr. Kinyoun as surgeon in charge of the Marine Hospital, and Dr. Herbert J. Higgs has resumed duties at the post-office branch.

Medical Society of City Hospital Alumni of St. Louis.—At the last regular meeting, held February 20, 1902, Dr. H. L. Nietert read a paper on "Penetrating Stab-Wound of the Heart, with Presentation of Patient." Dr. Frank Winter read a paper, entitled "Some Observations of Gunshot Wounds in the Philippine Islands." Dr. G. Hurd, through the Secretary, presented a paper on "Life."

St. Louis Medical Society of Missouri.—At the last regular meeting of this Society, held February 22d, Dr. C. H. Hughes read a paper on "The Neuropathological Aspects and Neurotherapy of Marasmus Infantilis."

In view of the existing epidemic of smallpox, and the general interest manifested therein, the evening of Saturday, March 1st, will be devoted to the consideration of this subject. Dr. W. T. Corlett, of Cleveland, and Dr. A. W. Brayton, of Indianapolis will take part in the discussion.

Gregory Testimonial Banquet in St. Louis.—The date of the testimonial banquet to Dr. Gregory has been set for Thursday evening, April 17th. A committee on invitations has been appointed which is certainly unique in that it is composed of one member of every class taught by Dr. Gregory, 50 in all. The banquet will be held at the Planters' Hotel and will doubtless be one of the largest and most impressive affairs of the kind ever held.

Harvard Medical School.—According to a statement issued February 20th by Dr. Warren and Dr. Bowditch of the Harvard Faculty, but $294,000 remains to be raised out of the sum stipulated by John D. Rockefeller as necessary before his gift of $1,000,000 towards the endowment of the Harvard Medical School would go into effect. At the time Mr. Rockefeller made his conditional gift to the University, $765,000 in addition was needed to complete the amount required to carry out all the plans of the University in connection with the Medical School. Mr. J. Pierpont Morgan is one of those who have contributed largely to the school, having agreed to give $1,000,000 without conditions.

Obituary.—Dr. Levi Cooper Lane is dead in San Francisco. He was a surgeon and founder of the Cooper Medical College and the Lane Hospital..

Dr. Louis Lewis, of Philadelphia, died in St. Vincent's Hospital, New York, February 20th, after an operation. He was born in England sixty-three years ago and came to this country in 1883, settling in Philadelphia. He was a graduate of the Royal College of Surgeons, and of the University of London. He was also a fellow in the Surgeons' Society of the Royal College of Surgeons, and a member of the British Chemical Association. Dr. Lewis served for a short time as surgeon in the British army. He was editor of the "Medical World," the "Medical Council," and the "Medical Times and Register."

Dr. Edward K. Bacon, one of the most esteemed of the younger members of the Detroit medical profession, died last week at his home. His death resulted from pneumonia. Dr. Bacon was born in Ypsilanti, Mich., where he received his early education. He matriculated in the Michigan Medical College of Medicine with high years and attained prominence among his colleagues. honors. He had practised in Detroit for the last seven His widow survives him.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

CAUTERIZATION OF THE EYE INSTEAD OF ENUCLEATION—THE INFLUENCE OF HEREDITY AND DEGENERACY IN OBSTETRICS—APPENDICITIS AND GENERAL INFECTION—EARLY DIAGNOSIS OF TYPHOID FEVER—THE ANTERIOR COMMISSURE OF THE SPINAL CORD—HORSE SERUM AND INFECTION—THE FORMATION OF RED BLOOD-CELLS—GELATIN AND THE BLOOD—HIGH FREQUENCY CURRENTS AND THEIR DIRECT APPLICATION TO ANIMALS—THE FORMATION OF THE EYE—PHLEBITIS OF THE SUPERIOR MESENTERIC VEIN—GENERAL TELANGIECTASIS AND CASTRATION.

Many valuable papers were read before the French Societies at the close of the year. The chief are the following:

Vallin, at the Academy of Medicine, December 31, 1901, presented in the name of Panas and of Dianoux a communication on a new method of operating on the eye, with the following chief points: Enucleation of the eyeball, especially in children, is a deplorable intervention because of the deformity which results from it and which, as age advances, tends to grow greater. With the exception of malignant tumors and traumatic infectious inflammation of the eyeball, it would be better to employ the method described by these authors. The following is the technic. Upon the cornea, without opening the anterior chamber, a ring, perhaps two millimeters in diameter, is made with the cautery at dull red heart. After this has been completed the disk so marked out is scooped away and the cornea is perforated at the center by rapidly increasing the heat of the instrument. Thus the contents of the anterior chamber are evacuated. The wound is then sprinkled with bismuth powder and the eye is kept protected by a compression bandage for three days. At the end of this time the surface of the wound is washed with hot water and between the lids a few drops of cocaine and eserine in the form of a collyrium are used. This treatment is continued until the wound is entirely healed. After this is an accomplished fact and all irritation is gone, the final result of the operation is brought about by massage.

Larger reported two cases showing the influence of heredity and degeneracy in the field of obstetrics. The first was that of a young woman who had had one normal childbirth, but during the second was seized with numerous manifestations of hysteria. The child born at this time presented many of the same characteristics. In the second case the mother had had three perfectly normal deliveries, and during the siege of Paris had become again pregnant. The boy brought into the world at this time presented by the face with prolapse of one arm and showed several signs of degeneracy. These cases and similar ones reported by other authors seem to show, according to Larger, the mechanical theories really admitted in obstetrics and

to disprove notably the inaccuracy of the law called the law of Pajot, or the law of accommodation.

Simonin, at the Medical Society of the Hospitals, December 27, 1901, presented a series of eighteen cases of general infections, severe scarlet fever, erysipelas, mumps, and infectious angina, in which were observed positive signs of inflammation of the appendix. According to the author this organ may be considered as a kind of tubular ganglion, which takes part during the course of general infection in the defense of the economy and receives the germs by the circulation of the blood as well as of the lymph. The first degree of inflammation of this organ, which might be called appendical folliculitis or adenitis, is shown by pain at the point of McBurney. This is also called latent catarrhal appendicitis. The second grade presents a peri-adenitis, that is to say, an inflammation of the cellular tissue around the appendix. The inflammatory reaction may propagate this as far as the mucosa and the peritoneum. Then follows a crisis or a colic of the appendix more or less acute, with distinct pain, nausea, vomiting and signs of peritonitis. Finally, an appendicitis with abscess may develop after perforation has occurred. The streptococcus is certainly the most frequent agent. Most of these appendicites arise from this germ. It is this same germ which is present ordinarily in angina, erysipelas, scarlatina, grip, measles, smallpox, and it may be the initial agent of infection or associated with some other. Certain authors consider sclerosis of the appendix with obstruction, which one sees so often at autopsies, the result of several attacks of inflammation, latent, subacute or acute, which have occurred during infectious diseases. Such infectious diseases commonly occur during childhood. This is a clinical fact which appears to substantiate the above theory.

J. Gourmont read a paper on the early diagnosis of typhoid fever by finding the bacillus of this disease in the blood. He states that its presence is constant in those ill with this disease, whether it be of mild or severe degree. The bacillus appears in the blood usually very early, about the fifth day, and continues to be present up to the seventh week. In the prolonged cases with relapses it may be found at a still later period, but this fact is not by any means constant. The germs found in the blood in this observation present all the classic characters of the bacillus of Eberth, excepting that there is very little tendency to agglutinate. The presence of the bacillus of typhoid fever in patients with the disease has no relation with the serum reaction. This may be very slight and yet the germ be present in the blood as early as the fifth day. This fact seems to present a means of dagnosing the disease very early when the reaction of Widal is uncertain or absent.

R. Petit read a paper on the utility of blood-serum from the horse for preventing infection of wounds. His foundation is both experimental and clinical and indicates that the serum of the horse heated to 55° C. exercises a stimulating action on the phagocytes, advantage of which can be taken to prevent infection in wounds and to hasten their healing. The serum has been used in three cases of laparotomy in man. He employs a dose of ten cubic centimeters which he injects into the peritoneal cavity after the operation is over.

Lombard at the Academy of Medicine, January 7, 1902, presented in the name of Laffont and himself a communication in which they stated that glycosuria, albuminuria, and hemophilia have for their cause a variation in the cryoscopic property of the blood. This variation is accompanied as a rule by changes in the liver, in the kidneys, and in the small blood-vessels. All these may disappear, according to these authors, if the normal consistence of the blood is produced. The means which appear to him the most active for obtaining this result consist in the administration by mouth of gelatin in water, fifteen grams a day as the total.

H. Bordier and Lecomte, at the Academy of Sciences, December 30, 1901, discussed in a paper the action of high frequency currents when applied directly to animals. When such currents are applied directly to man they are usually not accompanied by any sensation, which fact may be explained by assuming that these currents simply pass over the surface of the body without penetrating the deep tissues. Experiments enabled them to confirm this hypothesis. By applying the current directly to animals, rabbits, guinea-pigs and rats, they were able to kill them. If two collars were used, one around the neck and the second around the body, death came a few days after signs of paralysis appeared. If one pole was placed in the animal's mouth and the other in the rectum death occurred in the rabbit in five minutes, in the guinea-pig in seven minutes, and in the rat in forty seconds.

Picque, at the Society of Surgery, January 8, 1902, said that Gregoire and himself had had occasion to observe two cases of phlebitis with thrombosis in the superior mesenteric vein followed by gangrene of intestine. This is a rare affection. So far as is known only twelve other cases have been reported. The first case was that of a patient who, after twenty days of diarrhea and three days of constipation, suffered from hemorrhages from the bowel. An exploratory operation was done at which no positive diagnosis was made. The man died and at the autopsy a phlebitis with thrombosis of the superior mesenteric vein and extensive gangrene of the intestine were found. The second patient was admitted under the diagnosis of volvulus of the intestine. At the laparotomy it was possible to make out large areas of gangrene in the intestine, without, however, the least degree of volvulus. At the autopsy he found a condition of affairs similar to that which existed in the other case. Quénu in discussing this paper said he felt that the authors were wrong in part of their contention, namely, as to the priority of the lesions. They claimed that the disease of the vein preceded that of the intestines, whereas in his opinion it was probable that the thrombosis and phlebitis of the vein were due to the invasion of it by some bacteria which had previously been the cause of the diarrhea, constipation and bleeding. These were certainly cases in which the absence of a bacteriological examination was to be regretted.

TETANUS AND CARBOLIC ACID.

To the Editor of the Medical News:

Dear Sir: The following patient with tetanus was treated by repeated subcutaneous injections of a one-half-per-cent. watery solution of carbolic acid and recovered.

A girl, aged thirteen years, presented herself for treatment at my office last July with the following history: Seven days previous while playing in a barnyard she had fallen upon a barbed wire fence, severely lacerating her right hand. Physical examination revealed only three points of interest, viz., a cicatrix at the seat of the injury (palmar surface of the right hand), a slight stiffening of the masseter muscles, and a spasm of the flexor group of the right forearm. The child complained of difficult deglutition and of slight drowsiness.

Considering the nature of the injury it was thought best to freely incise the parts. This was done and the

wound thoroughly irrigated with a solution of hydrogen peroxide three per cent. and lightly packed. On the following day the patient presented clearly-defined symptoms of tetanus. There were generalized spasmodic contractions. The skin was hypersensitive and the reflexes were greatly increased. The jaws were nearly set and the eyes were very sensitive to light. The right hand was markedly flexed. Deglutition was difficult. Micturition and defecation were normal. The temperature was normal and the mind clear.

The child was put to bed in a dark room, kept quiet, given a laxative and a dose of bromide. The wound was irrigated with a three-per-cent. solution of H_2O_2, and a number of hypodermatic injections of a one-half-per-cent. watery solution of carbolic acid were then made in a circle around the wound. In all thirty minims were injected.

The next day the symptoms were more intense. The treatment continued the same; the injections were made more frequently, however, thirty minims being injected every three hours.

On July 25th the child showed signs of improvement. The jaw muscles were somewhat relaxed and the right hand could be extended by passive motion. On the following day there were signs of systemic poisoning from carbolic acid. The injections were therefore reduced in frequency to one *per diem*. On the 27th the spasms were aggravated, the jaws were more tightly set and the right forearm and hand rigidly flexed. The injections were again administered more frequently, three times a day. These were followed by a gradual relaxation of the muscles, and from July 27th until the middle of August there was improvement until August 19th, when the child was able to walk to my office. The injections were gradually diminished until but one was given every second day. The bromides were administered daily.

Kenneth E. Kellogg.

New Britain, Conn., Jan. 13, 1902.

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION—NEW YORK COUNTY BRANCH.

Stated Meeting, Held January 20, 1902.

The President, Parker Syms, M.D., in the Chair.

Primary Sarcoma of Pancreas.—Dr. Edward Schnaper presented specimens from two cases of primary sarcoma of the pancreas. This pathological condition is extremely rare, very few being reported in medical literature. In one of the cases no diabetes and no tendency to glycosuria had been found, though for months most of the pancreatic tissue had been infiltrated by the sarcomatous neoplasm.

Symposium on Diabetes.

The principal scientific business of the evening consisted of a series of papers on diabetes, the first of which, on the etiology and pathology of diabetes, was read by Dr. Charles F. Nammack.

Alimentary Glycosuria.—Dr. Nammack said that alimentary glycosuria is probably much more common than is usually thought. Small amounts of sugar in the urine should be looked for very carefully. A number of drugs produce glycosuria—Ether, when taken by inhalation, amyl nitrite, mercury, hydrocyanic acid, sulphuric acid, alcohol, strychnine, glycerin and nitrobenzol; alcohol is an especially frequent cause of glycosuria. The combination of chronic gastritis, chronic alcoholism and chronic hepatitis, furnishes the largest number of cases of non-diabetic glycosuria. Traumatic glycosuria is met with particularly in injuries of the nervous system. Portal thrombosis, acute yellow atrophy of the liver, and perhaps phosphorus-poisoning will also set up glycosuria. Most of these cases can be distinguished, however, from true diabetes mellitus without difficulty.

Composite Diabetes.—Dr. F. W. Pavy differentiates two classes of diabetes—alimentary and composite. In composite diabetes there is not only defective carbohydrate assimilation, but also abnormal tissue disintegration and the presence of degradation products. These products appear in the urine as beta-oxybutyric acid, diacetic acid and acetone, indicated by the appearance of a red wine color on the addition of ferric chloride. True diabetes mellitus is increasing in New York. This is probably due to the more strenuous life of the present generation; the bustle of present-day existence is hurrying one on to premature decay of tissue. Of 202 deaths from diabetes in New York (Manhattan and The Bronx only) in 1899, 51 were in patients of Irish extraction, 54 among Jews. One compiler of statistics claims that this greater incidence of diabetes among these two classes of people is due to persistent breeding in and in. To Dr. Nammack it seems that this special frequency of diabetes is due rather to the struggling earnestness of both people; heredity does play an important rôle, however. Those occupations furnish most diabetes which involve continued and excessive mental application. The excessive use of tobacco may have a like result. Emotional stresses when intense or protracted also have a marked influence. The association of insanity with diabetes is so marked as to be more than a mere coincidence. The connection between gout and glycosuria is so intimate that they may be almost considered as convertible conditions, the symptoms of one often distinctly alternating with those of the other. Obesity and diabetes also have close relations; usually this lipogenous diabetes, or diabetogenous obesity yields to treatment, but later on the composite form of diabetes may develop.

The Pancreas and Diabetes.—There is some close relation between certain cases of diabetes and lesions of the pancreas; somehow, however, extensive lesions of the pancreas may occur without diabetes and sometimes diabetic patients have normal pancreases. It is not the loss of the pancreatic juice which produces diabetes; the diversion of this through a fistula is possible without glycosuria. The theory is that there is an internal secretion from the pancreas which has a glycolytic property. Changes in the liver have also been noted in diabetes, but the pathogenesis of the disease is not understood.

Suppuration in Diabetes.—Dr. Arpad Gerster, in discussing the surgical aspects of diabetes, said that it is probable that the reason for the frequent growth of pyogenic micro-organisms, especially the staphylococcus and streptococcus in the tissues of diabetics, was due to the fact that these micro-organisms grow better on a sugared medium. Especially is this true if about the percentage of sugar is added to the medium that occurs in diabetic blood. This was demonstrated by Fritz Grossman, who also showed that if, in rabbits, glycosuria is produced by means of nitrite of amyl, it is very easy to cause gangrene and various suppurative processes in the animal tissues.

Insidiousness of Diabetes.—Dr. Gerster said that diabetes is an extremely insidious disease; in the beginning of its course, glycosuria is nearly always intermittent. Urinary examination may prove negative and yet diabetes may be present. Usually in these cases, however, careful taking of the history will elicit the fact that polyuria and thirst are sometimes present and

also some of the other symptoms of diabetes. At times the sugar in the urine disappears during the drain of suppuration upon the system; on the other hand, infectious fevers nearly always stop the glycosuria because of the retrenchment of the diet that occurs as the result of loss of appetite. Dr. Van Noorden said that in seven cases of diabetes that occurred in doctors and pharmacists whose urine had been frequently under examination, without any suspicion of the disease, sugar was found to be intermittently present for a long time before the diabetes absolutely established itself. There is a popular belief that certain peoples' tissues heal easily, while those of others do not heal except after suppuration; it is not improbable that these latter are suffering from latent diabetes. In the old times it was the custom to make a test incision when a grave operation was contemplated, and if this incision through the skin did not heal kindly, the more serious operation was not performed. The possibilities of latency make it clear how necessary it is to examine carefully the urine of all patients who are about to be submitted to a surgical operation.

Frequent Surgical Complications.—The most common surgical complications of diabetes are furunculosis and carbuncle; few diabetics escape these. Carbuncles may, however, occur without a diabetic basis; in fact, in German statistics, of 32 cases of carbuncle, only two patients had sugar in the urine. It is easy to understand how the polyuria, so frequent an accompaniment of diabetes, may cause a dry skin that becomes very easily irritated; the scratching incident to this condition leads to inoculation with pyogenic micro-organisms and hence the furuncles.

Sugar in Sweat.—At times furuncles occur in diabetic patients who sweat very freely. In these cases, however, it will usually be found that there is sugar in the sweat, the presence of which easily leads to irritative conditions. The phimosis which is so common a complication of diabetes is due to the presence of irritating sugar in the urine.

Location and Size of Carbuncles.—The typical place for carbuncles is on the dorsum; they may occur in any locality from the occiput down to the sacrum, but occur most frequently on the face. At times they may reach a very large size. Dr. Gerster has seen one which reached from the occiput to the lumbar region. Diabetic carbuncle of the face must be treated surgically as early as possible, otherwise thrombosis of the emissary veins may lead to intercranial infection; and so to a fatal termination.

Diabetic Gangrene.—The most common form of gangrene is that of the skin and it affects especially the legs. It may begin as a small blister, due to friction, to the application of a vesicant or mustard plaster, to the prick of a hypodermic needle, or to the irritation produced by a truss. It should be treated by the application of moist dressings wet with mild antiseptics. If infection of the gangrenous area takes place extensive ulceration follows and phagedena may set in. The perforated ulcer of diabetics is not different from that of other patients. The gangrene of a whole extremity is not a very unusual occurrence in diabetics. It occurs seven times more frequently in the leg than in the arm. The previous history of the patient usually shows that there has been the intermittent lameness described by Charcot. Attacks of this affection begin with a painful numbness and fatigue of the extremity, while the toes become slightly blue, showing that there is interference with the vasomotors. If in these cases sugar is found in the urine, the occurrence of gangrene sooner or later may be predicted. Gangrene occurs four times more frequently in men than in women. The reason for this is probably that men have more exhausting occupations and so greater degeneration of their arteries than women. At times amputation becomes necessary in diabetic gangrene; about one-half the patients die, many from diabetic coma. In the preantiseptic days, Landouzy said that diabetic gangrene was a *noli me tangere* for surgeons. Jonathan Hutchison counseled high amputation even if only the toes were involved in the gangrene. A middle position between these two opinions is now occupied. The conservative method gives very satisfactory results. The leg is raised and kept perfectly dry, no poultices or moist dressings are used, and the formation of the line of demarcation is waited for; the affected part is allowed to drop off, but no cutting is done unless absolutely unavoidable. If amputation become necessary the point may be selected according to the condition of the limb. If the pulse is good in the popliteal space, amputation may be performed below the knee; if there is any doubt of the pulse here, then go higher. Infection from the gangrenous area must be carefully avoided, so that the amputation should be done at some distance away. The decision is often for high amputation. Dangers of operation are, first, the anesthetic, feared because of the cardiac debility; secondly, the coma, which often follows major operations in diabetic patients. Coma is due to the presence of acid substances in the blood, these being due to a too restricted diet and to the absorption of tissue products during and after the operation. Very restricted diet must be avoided before the operation and the strictest antisepsis and asepsis secured during the operation. The operation should be performed in the morning when the patient is reasonably fresh and not in the afternoon when he is tired and played out from the day's fast. The amount of starch and sugar in the dietary just before and after the operation should be increased even though this increases the glycosuria. Before and after the operation two grams of bicarbonate of soda should be injected, in order to lessen the acidity of the blood. Chloroform and ether have equal dangers. Diabetic coma has occurred after local anesthesia by means of cocaine in an operation for cataract. Its use probably does not lessen the danger. The Esmarch bandage should be avoided and the arteries should be compressed digitally in order to avoid all injuries of the tissues that might lead to a recurrence of the gangrene, long flaps should be avoided and sutures not employed as they favor necrosis of tissue, but short flaps should be made and the wound left open to heal by granulation. Every case of surgical intervention should be preceded by careful examination of the urine of the patient; if there is any doubt of the presence of sugar a test-meal of eight ounces of bread and sweets should be given, when, if glycosuria does not follow, there is no diabetes. The prognosis of surgical operations in diabetes does not depend on the amount of sugar in the urine, even when patients have as high as six per cent. of sugar, the majority of them recover from surgical intervention. The important factor is the acidity of the blood, which induces coma. It is this that shows the decadence of the tissues. The absence of the knee reflexes is said to be a sign of a bad prognosis. In the last ten years thirteen cases of major operations in diabetic patients have occurred at Mt. Sinai Hospital. Five of the patients operated upon died of coma in from three hours to three or four days, directly following the operation. Two other patients died five to six months later. These, of course, have no connection with the operation. As a rule at Mt. Sinai, cutting operations are done only when absolutely necessary; if, for instance, a toe becomes gangrenous and the bones should project beyond the sloughing tissues, the periosteum is pushed

back and the bone is enucleated at the next joint. The expectant treatment is carried out to the fullest extent possible.

Diabetic Affections of the Eyes.—Dr. S. Busby Allen said that every tissue of the eye may be affected by diabetes. It is not surprising to find that the fundus of the eye should suffer in so serious a disturbance of metabolism. When the ophthalmologist looks at the eye-grounds he is really gazing at brain tissue. This is extremely delicate and easily affected. Both internal and external ophthalmoplegia may occur in consequence of complications of diabetes. The occurrence of muscular eye weakness in a patient of thirty-five must always arouse suspicion of diabetes. Even in comparatively early years diabetes may produce changes in the shape of the eyeball or the lens so as seriously to disturb vision. Such changes have been reported in patients under forty. They must be guarded against because the proper treatment of diabetes will lessen the tendency to their occurrence.

Diabetic Cataract.—This is the most characteristic eye lesion produced by diabetes. It is all the more interesting because other serious metabolic diseases do not cause its development. Noyes has said that changes in the lens are not due to inflammation, but are really degenerative in character. It is extremely interesting to consider what poison it is that produces cataractous changes. There is really no difference discoverable between diabetic and ordinary senile cataract. In old patients one cannot be sure whether cataract is due to diabetes or merely to senescence except after careful examination of the urine. In very young people, of course, the occurrence of double cataract or of very rapidly progressive cataract is almost a sure index of diabetes. Recent studies have shown us that amblyopia is especially liable to occur as a consequence of the use of tobacco. It may, however, occur in diabetic patients in the absence of either alcohol or tobacco. It is a true toxic amblyopia, due very probably to the presence of poisonous acids in the blood.

Eye Operations in Diabetes.—As far as possible operations upon the eye in diabetic patients should be done during lulls in the disease; that is, at times when the amount of sugar in the urine is less than usual. Operations for cataract are usually followed by iritis, but this is commonly not serious. It must be remembered that cyclitis in diabetic patients may easily lead to glaucoma, or may interfere with the nutrition of the vitreous or of the cornea. Even slight injuries of the eye should be cared for scrupulously in diabetic patients or they may have very serious consequences. Simple ulcer of the cornea in diabetes, as in nephritis, may readily lead to the loss of an eye.

Prognosis of Diabetes.—Dr. Abraham Mayer said that the prognosis of diabetes depends on a number of factors. The age of the patient is especially important; the younger the patient, the worse the prognosis. The presence of arteriosclerosis in a comparatively young patient with diabetes adds to its seriousness. Traumatic or syphilitic diabetes is of more favorable prognosis than other forms. Old patients in whom the disease has already lasted for a long period are not liable to be seriously inconvenienced by diabetes or to have their lives shortened. The coexistence of obesity is a favorable factor. The so-called uric-acid diathesis is also a favorable condition. Much depends on whether the patient is in such circumstances in life as to make proper diet and hygiene possible. The existence of phthisis in a case is always serious. The presence of nephritis makes the prognosis very grave. Serious organic disease of the pancreas is an index of early fatal termination as a rule. The patient's general condition, the state of the heart and of the digestive tract are also important factors in prognosis. Diabetes may be divided into mild, medium, severe, and very severe forms of this disease and in the first two classes the prognosis is reasonably good as regards life. The standard as to the form of diabetes present in any case is the test whether a patient after a rigid diet is free from glycosuria. If no sugar occurs in the urine, then the case is mild. If, in order to remove the sugar from the urine nitrogenous products in the diet must also be limited, then it is a mediumly severe form of the disease. The severe diabetes gives glycosuria even when no carbohydrates are present in the diet.

Treatment of Diabetes.—The principle upon which the hopeful treatment of diabetes is founded is enunciated by Naunyn. When any weakened function is rested it gets better and stronger, abuse of weakened function on the contrary leads to its further deterioration. A lessened amount of sugar in the dietary, by sparing the metabolic function for sugar increases its power. Hence the dietetics of diabetes become really curative in effect.

Dietary.—The quantity that a diabetic patient may take must be regulated as well as the quality. Many of these patients suffer from overfeeding. Fats and albumin must be the main portion of the food. They suffer most for want of bread. Dr. Mayer has found that walnuts may replace bread. They are taken with evident relish. When there is a tendency to emaciation an abundance of fat must be given. Alcohol aids in the digestion of fats and besides replaces a certain amount of food material by the heat it supplies when burned up in the system. It thus reduces the tendency to phthisis and coma.

Drug Treatment.—Any number of drugs have been recommended, but most of them fortunately have fallen into disuse. Opium remains the most effective drug for the disease. It not only lessens the thirst and hunger and so reduces the sugar, but it also improves the assimilation, allays the nervousness, irritability and tendency to itching. A half grain three times a day may be given at the beginning; cascara should be administered to prevent constipation. Dr. Mayer has found various salts of arsenic very useful but he has not found that combinations of gold and arsenic are better than others. A most effective drug in Dr. Mayer's hands has been the sublimate of mercury. This is given in doses of one-sixteenth of a grain, three times day, in a large glass of water; it is not suitable for every case, but in diabetics of sluggish bowels in whom the bacterial cause seems prominent and the absorption of intestinal toxins an etiological factor, this remedy exerts a very favorable influence.

Insidious Glycosuria.—Dr. Bierwith said in the discussion that it is not an unusual thing to find glycosuria without increase of the quantity of urine passed, or increase in the specific gravity of the urine. In these cases surgical procedures might easily be determined upon without realization of the patient's condition, though, needless to say, they involve serious risks. Treatment of diabetes in order to be successful, must begin early, and for this early discovery of the glycosuria is important. Diabetes as seen in different patients is not always the same disease, but has a different pathological basis and a different etiology in many cases. Dr. Bierwith is not sanguine as to the successful treatment of diabetes.

Suprarenal in Diabetes.—Dr. James J. Walsh called attention to the fact that in recent experiments a direct connection between the secretion of the suprarenal glands and the occurrence of glycosuria seemed to have been found. These experiments are the most interesting recent observations in the patho-

genesis of diabetes. They serve to show how incomplete knowledge of the subject is as yet. With regard to latent diabetes the glycosuria will be discovered if certain suspicious signs are borne in mind. Loss of muscular power, for instance, soreness of the gums, loss of sexual potency, lapses of memory, greater disinclination than usual to work in young subjects, are apt to be the earliest symptoms of diabetes and should arouse suspicion. With regard to the prognosis of the disease the tradition in Germany is that no patient has lived more than two years after the Gerhardt reaction was found positive in the urine.

Possible Contagiousness.—Dr. Walsh said that the occurrence of diabetes in husband and wife is now known to be comparatively so frequent that the possible contagiousness of the disease is a practical point to be borne in mind. It may be that some ferment which finds its way into the circulation is responsible for the splitting of the sugar molecule that renders it unsuitable for nutrition; such a ferment might easily be communicated.

In closing the discussion, Dr. Mayer said that while only one per cent. of the cases of diabetes in thus far published reports occurred in husband and wife, in statistics gathered by himself in which he always asked for a sample of the husband or wife's urine, when the other was affected, he found glycosuria in five to eight per cent. of the cases. He believes diabetes to be contagious and infectious. With regard to the use of bichloride of mercury, European authorities consider that it is in certain cases a helpful method, though they fear the use of so strong a poison in the comparatively large doses recommended. Recent text-books all mention it and there seems no good reason to doubt that in selected cases it is the most effective treatment that there is at present.

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

Stated Meeting, Held January 9, 1902.

Rowland G. Freeman, M.D., Chairman.

Hemitrophic Asymmetry.—Dr. A. Hymanson presented a patient suffering from congenital asymmetry or hemihypertrophy. The child when born weighed about twelve and one-half pounds; the labor was tedious and difficult, but forceps were not used. About six weeks after birth it was noticed that the right arm and leg were larger than the corresponding left limbs; the right thorax and abdomen were also more developed. The expression of the child was somewhat idiotic and the left face was a little more developed than the right. At the back of the head, however, there was distinct bulging of the right side of the head. The skin is soft and smooth on both sides of the body and not roughened as is often the case in hypertrophic conditions. The reflexes are normal. The infant is rather nervous and irritable during the day and is prone to be restless at night. A number of convulsions have been noticed, more noteworthy on the right than on the left. The tongue is distinctly thicker on the right side than on the left and takes part in these convulsions. There does not seem to be any hereditary element in the case. The parents are Russians and have had eleven healthy children. Twelve such cases have been reported in recent literature. As a rule all the tissues are uniformly enlarged—the skin, the muscles and the bones. Medical knowledge with regard to these cases, however, is not very definite. It is evident that theory has had more to do with the explanation of the causes of the condition than actual observation.

Rachitic Asymmetry.—Dr. Dessau said in discussing Dr. Hymanson's case that he had reported a case not long ago in which there was a decided asymmetry, though not very marked. In Dr. Dessau's case rachitis seemed to be the main etiological factor. Careful examination, however, does not seem to reveal any sign of rachitis in this patient and the case seems to be an example of essential congenital hypertrophy.

Spasmus Nutans.—Dr. Charles Hermann presented a patient suffering from the characteristic headshake of this affection. There is no heredity to be traced. The infant was breast-fed for a year and at thirteen months contracted measles, since when there has been the head-nodding. There is, as always in these cases some nystagmus; the movement of the eyes can be especially brought on by having the patient look toward the left; when the patient looks toward the right it ceases. The head-nodding is most noticeable when the nystagmus is most active.

Etiology.—Usually rickets exists as a factor in the etiology of these cases. Not infrequently the spasmus nutans begins after trauma. Sometimes it is due to the fact that the infants develop nystagmus as a result of being kept constantly in a glaring artificial light. In the present case, the method of Dr. Caillé can be employed successfully to prevent the head-nodding. His suggestion is to cover up the eyes for the time being with a bandage. When this is done or when the patient's head turns to the right and there is no nystagmus, the nodding spasm ceases. When the head is held the nystagmus can be seen more plainly. Hence it is always worse when at the breast and when the mother's attention is especially attracted to it. In the other patient a distinct rachitic condition can be found. Though the infant is seventeen and one-half months old, the fontanelles are widely open at a time when they ought to be almost completely closed. Moreover, the rachitic rosary is present on the ribs and the epiphyses of the limbs are larger than normal. Usually phosphorus is the best remedy in these cases. In one case in Dr. Hermann's experience, however, in which all the ordinary rachitic remedies failed, the patient was greatly improved by a sojourn of three weeks in the country.

Phosphorus in Rachitis.—Dr. Louis Fischer said that while it is generally conceded that phosphorus is an excellent antirachitic remedy, a decided reaction against the notion of its usefulness in rachitis is noticeable. Baginsky of Berlin says that, though he has used it to a considerable extent and watched its administration very carefully, he has not found the slightest benefit result from it. Its administration in the ordinary form of phosphorized cod-liver oil is scarcely an index of its usefulness, since the phosphorus in this preparation rapidly disappears.

Benefit of Phosphorus.—Dr. Dessau said that he has used phosphorus largely and has often obtained excellent results. He has commonly not used it alone but as the elixir of phosphorus of the United States Pharmacopœia. Since the introduction of this remedy some fifteen years ago, he has employed it in combination with cod-liver oil; he is not absolutely certain whether it is the cod-liver oil or the phosphorus that produces the good results, but certainly the patients recover more rapidly than before. He wishes it to be distinctly understood that he is a believer in the use of phosphorus for rachitis.

Trauma and Fright in Spasmus Nutans.—Dr. Stokes said that he has had the opportunity to see some six cases of spasmus nutans. In none of them were there any signs of rachitis. In a recent case the nystagmus developed suddenly as the result of an accident. The child was seated on a chair which, by the touch

of a spring, can be converted into a baby carriage; the spring was accidentally touched and the chair suddenly dropped into its lower position, the child was very much frightened, had a series of nervous symptoms and then nystagmus developed with later nodding of the head.

Effect of Heat on Cow's Milk.—Dr. S. H. Dessau read a paper on the use of heat as a modifying agent for the preparation of infant's food. Up to the present time heat has been considered useful for the preparation of baby food, mainly because it destroyed pathogenic germs. It has come to be realized, however, that certain chemical changes are induced in the milk by heat and that these may or may not be of assistance in the digestion of the milk. Fresh milk is a raw product and as such is not as digestible as cooked material. There is a marked contrast between the vomit of the cow's-milk-fed child and one fed on breast milk; the small curds, soft and soluble, of the breast-fed infant are well known. Clinical experience has shown that this is due to the difference in the digestibility of the two milks. The curd of sterile cow's milk is much more like that of breast milk; some chemical change would seem to have been induced in cow's milk that causes it to curdle in a manner more suitable for infant indigestion. Every housekeeper knows that rennet will not curdle boiled milk. It is important, however, not to raise cow's milk to too high a temperature. Sterilization at a high temperature seems to cause chemical changes in the salts of the milk that make them insoluble. As the result of the lack of these salts in the food, the infant is liable to scurvy; the antiscorbutic elements of the food are destroyed. This is true of the phosphates also and so the antirachitic elements in the milk are destroyed. The effect of heat upon food materials and their digestibility has never been sufficiently recognized. Professor Remsen of Johns Hopkins showed that the effect of heat is much more than has been thought, its principal effect being the aid to digestion if the temperature used be not too high. In Dr. Dessau's experience this use of a moderate amount of heat up to about 140° F. is much better than the attempted imitation of mother's milk. This latter is an extremely intricate problem and one that can not be solved readily under ordinary household conditions.

Anaerobic Bacteria in Milk.—Dr. J. Lumley Bell of Englewood, N. J., said that while it is well known that ordinary microbes are destroyed by sterilization, it is not known that anaerobic bacteria are destroyed by any temperature under that of the boiling-point. Very little is known of these micro-organisms, but it is beginning to be realized that they are probably pathogenically active in the intestinal tract much oftener than has been thought. While heat may destroy ordinary germs and so improve the quality of milk and may add to its digestibility by modification of the chemism of the milk, it cannot be of avail in making good baby-food out of poor milk. When microbes have continued to multiply in milk for a number of hours, certain of their soluble toxic products are dissolved in the milk and these, of course, will not be destroyed by heat. During the warm weather when microbes multiply so rapidly it is the presence of these toxins rather than the germs themselves that causes the serious effects upon the infantile digestive tract.

Coagulation by Gastric Juice.—Dr. Max Einhorn said that in his experience boiled milk coagulates as readily when mixed with gastric juice as raw milk. His experiments, of course, were conducted with the stomach-contents of adults, but he knows that the same thing would happen also if the gastric juice of infants were employed. Any dilution of cow's milk causes it to coagulate in a manner much more nearly resembling the curdling process of human milk. Dilution with barley-water suffices for this purpose.

Boiled Milk and Constipation.—Dr. Louis Fischer said that the boiling of milk for infant's food causes an extreme form of constipation. Milk that is only pasteurized has a much more constipating tendency than raw milk. During the last year Dr. Fischer has had a number of children under observation who were being fed on milk that had been sterilized according to the direction of Professor Russell of Wisconsin, the milk being raised to a temperature not above 150° F., which suffices according to Professor Russell's observations in destroying the bacteria in the milk. Even when milk is raised only to this temperature, it still proves somewhat constipating. The ideal in infant-feeding of cow's milk is a milk certainly free from bacterial contents fed at human temperature. There are several dairies in the city now that supply practically sterile milk should be subjected to this temperature for not cubic centimeter may very well be neglected. Milk from grocery-stores, however, often contains several millions of bacteria to the cubic centimeter, and this sort can not be rendered innocuous by boiling.

Heated Milk and Scurvy.—Dr. Rowland G. Freeman said that in the American Pediatric Society investigation of the cause of scurvy among children in this country, it was found that most of the patients had been fed on patent food, very few on sterile milk, so the scorbutic condition was evidently a consequence of unsuitable food rather than of any special change in the food. A certain number of cases of scurvy have been found to occur also in breast-fed children. In Dr. Freeman's experience, heating has no effect on the curdling of milk; boiled milk will coagulate in just as large curds under unfavorable conditions as will raw milk. Dr. Freeman does not think that the heating of milk to 140° F. for ten minutes is sufficient to destroy the micro-organisms in it; he thinks that a temperature of at least 160° F. should be employed and that the milk should be subjected to this temperature for not less than half an hour. This temperature is necessary especially in the case of delicate or ailing children.

Imitation of Human Milk.—Dr. Dessau said that the fad for trying to make imitations of human milk reminds him of the old-time search for the philosopher's stone; cow's milk and human milk are entirely different things. Though they contain what seem to be the same ingredients, though in different proportions, it is probable that some of the ingredients at least are of entirely different natures in the two compounds It is probable that the feeding of milk direct from the cow before it cools would be one of the most healthy ways of supplying infant food, but, unfortunately, this is not possible under ordinary circumstances, and the next best thing seems to be the proper preparation of milk food by judicious heating.

Childrens' Stomach-Contents.—Dr. Louis Fischer reported a series of observations on the chemistry of infants' stomachs, not with the idea of adding anything new to the knowledge of this subject, but in order to confirm and amplify the knowledge obtained by previous observation. He procured the stomach-contents in a certain number of children by siphoning off the material one to two hours after feeding. Most of the stomach-contents, however, were obtained from the vomit of children. In only two cases was there failure to find hydrochloric acid. One of these children was suffering from rachitis and the other was in very poor general health. It is evident that hydrochloric acid is not often absent from childrens' stomachs. The most successful treatment for the absence of hydrochloric acid in Dr. Fischer's hands is the use of external fara-

dization and the two drugs nux vomica and hydrochloric acid in drop-doses three or four times a day. After the use of these remedies for some days hydrochloric acid is found on subsequent examinations. As a rule hydrochloric acid is absent when high temperatures are present. Dr. Fischer did not find this rule, however, to be so absolute as has been claimed from the results of previous observations. In a case of measles when the temperature was 105° F., hydrochloric acid was absent, though it had been present before and was present shortly afterward. In a case of scarlet fever Dr. Fischer found traces of hydrochloric acid, though Lee says that hydrochloric acid is always absent during the active course of this fever. At the time that traces of the acid were found the child's temperature was 105° F.

Free Hydrochloric Acid in Children.—Dr. Einhorn years ago in making a series of observations on the contents of childrens' stomachs found free hydrochloric acid was present in only two cases. All of the children that he examined were perfectly normal; combined hydrochloric acid was present, but not the free acid. The gastric acidity in the child is as a whole lower than that of the adult; the albuminates of the milk, which forms the almost exclusive diet of children, combines with the hydrochloric acid, and so does not exist free in the stomach. The acidity that is noticed in the vomit of children is lactic acid and not hydrochloric acid. In febrile conditions in adults there is an inhibition of gastric secretion; this is true not only for the hydrochloric acid, but for the other elements of the gastric juice. This rule holds also for children. In typhoid fever as a general rule hydrochloric acid is very limited; in patients at the German Hospital, however, Dr. Einhorn was able to find some cases in which even free hydrochloric acid was present. It is probable that fever seldom completely inhibits the secretion of acid.

Massage in Gastro-Intestinal Conditions.—Massage is not a therapeutic measure that can be recommended on general principles for gastro-intestinal disturbances; if wrongly applied it may do harm; Dr. Einhorn has seen a case of localized peritonitis occur as the result of overzealous massage in an unsuitable case. In patients suffering from enteroptosis massage will almost surely do more harm than good. It is no uncommon experience, however, to find that patients suffering from this condition have been recommended by physicians to take massage. In children massage may much more easily do harm than in adults.

Tests for Gastric Acidity.—Dr. M. I. Knapp, when told that Congo paper was used to determine the presence of hydrochloric acid, said that this was extremely unreliable, as Congo paper reacts to acetic, succinic, oxalic, formic and in a word to all the organic acids that may be present in the stomach in small amounts; also to monophosphate of magnesium and certain other salts. Conclusions drawn from tests made with Congo paper are exceedingly unreliable. The best test for free hydrochloric acid in the stomach is made with ammonic citrate of iron according to the method recently suggested by Dr. Knapp.

Abdominal Massage.—Dr. Knapp said that abdominal massage, if not applied with great care, may easily do very serious harm. He has seen a number of bad results. Massage may be employed with benefit over the lower part of the abdomen, but not over the stomach. Massage of the epigastric region, when there is any true gastric disturbance, is almost sure to do harm, though it is often recommended.

Bilious Vomiting.—This is a symptom that, according to Dr. Knapp, is often said to occur, but without sufficient reason. True bilious material is seldom contained in the vomit. Bile should always be tested for by Pettenkofer's or some other method before the case is pronounced one of bilious vomiting. The mere greenish yellow color of the vomited material with the bitter acid taste is not sufficient to demonstrate its biliary origin, or even to prove an admixture of bile present. This greenish material will often be found to be a pure culture of mould.

Hydrochloric Acid and Prognosis.—Dr. Fischer is inclined to think that the presence of hydrochloric acid in certain infectious diseases may prove a sign of a good prognosis in cases in which ordinarily hydrochloric acid is absent. In some recent cases of septic diphtheria, in which the prognosis was very bad, Dr. Fischer found only one patient in whom free hydrochloric acid was present during the course of the disease, and this was the only patient that ultimately recovered. In septic diphtheria, the fever is usually very slight and the absence of hydrochloric acid is not due to high temperature, but to functional inhibition from general prostration.

Massage in Children.—Dr. Fischer has used massage very extensively in children, and is more gratified with the remedy the more he employs it. For atonic constipation this remedy presents the best possible method of treatment. In gastric disturbances dependent upon poor circulation, abdominal massage does excellent service. In gastric cases generally, however, the sheet anchor in treatment must be nux vomica and dilute hydrochloric acid.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, Held January 2, 1902.

The President, Alexander Lambert, M.D., in the Chair.

The Personal Liberty Plea as Made Against Medical Legislation.—Dr. Floyd M. Crandall read a paper with this title. He said that he was led to write it by the fact that every attempt to advance the standard of medical practice in this country is invariably met by the complaint that the personal liberty of some of the citizens of the State is threatened. The last argument of this character was that recently made by Mark Twain while speaking in favor of the osteopathic bill before the New York Legislature. Dr. Crandall's paper is an answer to these arguments. Unlike Mark Twain, who is an educated man, there are tens of thousands of people who are unable to judge either of the character of the practitioner or of his treatment. The only protection for these unprotected thousands is the guarantee afforded by the State contained in the license to practise. Medical laws are not enacted for the benefit of the medical profession, but for the good of the people. The medical profession does not enjoy privileges which it is not willing to share with others. It asks only that it be not discriminated against by allowing those to practise who are only partially qualified. It asks only fair play and that all be treated alike. It asks that all who are granted the privilege to treat disease shall be obliged to enter at the same door—that there be no subterranean passages or short cuts. To require certain qualifications of some and to permit others to enter with less would be a blow against personal liberty and equal rights. Absolute liberty can only be found in solitude. It cannot exist in civilized society, for something must be yielded by each individual when he comes in contact with others. Restrictive laws are necessary and are designed for the protection of the many against the few. There is a vast difference between liberty and license, which the argument of Mark Twain completely ignores. He

adopts the old fallacious argument that because the State allows religious liberty, no restriction should be put upon the practice of medicine. The two questions are so dissimilar that the argument is utterly worthless. Religion is a matter of faith and belief; the practice of medicine is a matter of acts. Religion is the relation between man and his Creator; the practice of medicine is a relation between man and man. The American State does not interfere with beliefs, only with acts. The services of religion, being between man and God, come rarely, therefore, under the jurisdiction of the State. The practice of medicine, on the other hand, being a relation between man and man, must continually come under its jurisdiction. It is a fallacious argument, therefore, to hold that because one requires but few restrictions, the other also requires but few. Were it not for the fact that the arguments advanced by Mark Twain are repeatedly heard, it would seem waste of time to argue that the State in requiring certain necessary qualifications is not abridging the liberty of its citizens. It would seem almost childish to contend that the State does not use unfair discrimination in requiring the same qualifications for all, and that those who have fulfilled its qualifications are not the recipients of special favors.

In the discussion Dr. Frederick Holme Wiggin said that in talking with the members of the Legislature with regard to these matters, he had found that the great difficulty in the past had been that the Legislature and the public generally believed that whenever physicians had endeavored to improve the standard of the practice of medicine they had done so entirely from selfish motives. Probably this feeling had originated from the fact that in earlier times regular physicians had opposed the practice of irregular physicians or eclectics because they differed on matters of treatment. So long as objections were made to a class of individuals because of differences of opinion of this nature failure would result. On the other hand, if efforts were directed to securing the licensing only of those having the proper qualifications, a good deal should probably be accomplished. This was like requiring an engineer to have a proper knowledge of the steam engine before being allowed to run one. In time there might be one general examining board. So long as there are various examining boards for so-called different schools of medicine, this strife would probably go on.

Dr. Parker Syms said he thought the weakness of the efforts in the past had apparently arisen from insisting too much upon mere methods of treatment. It was certainly this in the past which had given strength to the homeopaths. It was now well known that the vast majority of diseases could be successfully treated without drugs, and yet they were almost invariably treated by means of drugs. For this reason almost any kind of a healer must succeed in a large proportion of cases. Efforts should be directed to improving the standard of education for regular practitioners, leaving others out of consideration. The reader of the paper had very properly suggested that the standard of education should be raised, not in the schools, but by means of systematic post-graduate education. This could best be brought about by working together, all the specialists contributing to the general fund of knowledge.

Some Clinical Aspects of Chronic Non-Alcoholic Gastritis.—Dr. George R. Lockwood was the author of this paper. He said that an analysis of symptoms presented in a large series of cases showed great variation from the traditional course of the disease. The cases were divided into those with high acidity, normal acidity, and low acidity. Those with high acidity complained either of hyperacidity, "biliousness," or of diarrhea without lesion in the colon. Those with normal acidity were anemic and constipated. Those with low acidity were neurasthenic, poorly nourished, complained of "biliousness" or of diarrhea; nausea did not occur, nor did any patient vomit. The appetite was uniformly good. Gas occurred only when there was atony. Tests showed in the gastric contents of these cases no fermentation whatever, even when the gastric contents were kept at blood temperature for days.

Dr. Alexander Lambert in discussion asked the author whether he had found that oxaluria was a feature in these cases. He did this because he had found a number of patients presenting the digestive symptoms described in the paper and associated with oxaluria.

Dr. F. W. Jackson said that he was supposed to open the discussion, but he did not see how this could be done. All present must feel like thanking Dr. Lockwood, and congratulating him on his very instructive paper. If the position taken in the paper were to be accepted it was evident that there must be great difficulty in making the diagnosis. He wished Dr. Lockwood, in closing the discussion, to give some points in the diagnosis of gastritis which might be of service to those who were not experts in making gastric analyses. Physicians frequently met with secondary anemias without focal symptoms, and if the anemia were due to gastritis the physician should be able to ascertain this.

Dr. H. S. Stokes said that he had found a good deal of difficulty in general practice in securing the consent of the patient to washing out of the stomach, though many would consent if it were insisted upon by a specialist.

Dr. Lockwood replied that he had had only two persons refuse to submit to the treatment.

Dr. H. H. Seabrook asked how the atonic cases were distinguished from the others.

Dr. Lockwood said that this was one of the most difficult problems in gastric work. If, when in the fasting condition, six ounces of water when put into the stomach produced a splashing, such a stomach was atonic. When atonic, food would be retained longer than proper. There were, of course, conditions of temporary atony connected with a cold or perhaps with an attack of grip, but this would soon pass off. In the hyperacid cases there was some retention. He had made experimental lavage an important differential point, in cases of prolonged food retention, between atony and prolonged food retention with contracted pylorus. In cases of contracted pylorus, all of the water was returned; in cases of atony there was a large quantity of residual fluid. As the cases under intragastric faradization improved the stomach would be found able to expel the water introduced. Replying to the question as to the relation between oxaluria and gastritis, Dr. Lockwood said that oxaluria was probably dependent upon functional disturbance of the liver arising from the presence of abnormal products in the blood, these abnormal products being the result of perverted function of the stomach. Oxaluria, however, bore no relation to acidity or hyperacidity. In answer to Dr. Jackson, he would say that one should suspect gastritis (1) in any long continued gastric neurosis; (2) in all cases of biliousness and functional disturbance of the liver; (3) in all cases of persistent diarrhea; (4) in all cases of anemia and constipation not readily controlled by treatment and without apparent cause, and (5) in all melancholias or cases of depression, and in cases of causeless neurasthenia.

EASTERN MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held January 10, 1902

The President, R. Abrahams, M.D., in the Chair.

A case of "Amaurotic Family Idiocy" was presented by Dr. A. Hymanson. Dr. Schapringer demonstrated the eye lesions of the same case. A case of "Bullous Eruptions in a Child" was presented by Dr. Willian. S. Gottheil. A case of "Ulcer of the Esophagus" was reported by Dr. M. I. Knapp.

Otitis Purulenta in Infants.—This was the title of a paper read by Dr. Max Toeplitz. After a brief description of the anatomy of the ear in the newborn and infant, with especial reference to the difference from that of the adult, Toeplitz emphasizes the position of the mucous cushion of the tympanitic cavity at birth, for the question of existence and future development of the so-called otitis media neonatorum. This is not acknowledged as an independent disease, as proven by the numerous autopsies on children whose middle ears were found to be filled with pus, in, or without, connection with other diseases. He then describes the two forms of otitis purulenta, their symptomatology, course, duration and complications, particularly in acute infectious diseases. The causes of otitis purulenta are then exhaustively treated as well as its bacteriology and frequency of occurrence. In conclusion, the treatment is briefly sketched and the indications for operations (paracentesis, mastoidotomy) are well defined.

Dr. Edward Fridenberg, in opening the discussion, called attention to the difficulty in diagnosing otitis in infants; in these young patients it may be mistaken for typhoid fever, meningitis, etc., until the spontaneous rupture of the drum membrane, when the symptoms suddenly abate. He emphasized the importance of routine examination of the ear by the general practitioner. Dr. Fridenberg stated that 90 per cent. of all chronic otorrheas in children are due to extension of an inflammation from the nose and throat to the ear, particularly in cases of tonsillitis, measles, scarlet fever, etc.

The Indications for the Surgical Treatment of Cholelithiasis.—Dr. A. A. Berg said he considered that those cases of cholelithiasis that manifest themselves by cholecystitic pain and attacks of biliary colic uncomplicated by cholecystitis were benefited by medical treatment. Great severity or constancy of these symptoms in spite of medical treatment called for surgical intervention. The first attack of acute cholecystitis accompanying calculous disease of the gall-bladder formed a strong indication for the abandonment of the medical and a resort to surgical treatment. For even though the acute attack subsided the secondary infection of the gall-bladder and ducts by the bacteria which gave rise to the acute cholecystitis, did not pass away. These bacteria remained residents of the gall-bladder and ducts, exciting from time to time fresh attacks of cholecystitis. In the apparently quiescent periods between these acute attacks, they are giving rise to local lesions, and by their life and development to a chronic general intoxication, the latter manifesting itself by fatty and waxy degeneration of internal organs. The toxemia is especially important, and to it is ascribed the debilitated and emaciated condition of the patients who have suffered for a long time with attacks of acute cholecystitis. Dr. Berg considers that early operation after the first attack of cholecystitis will avoid these serious local and toxic complications. As a rule operation is not imperative during the first acute attack of cholecystitis. This is because the great elasticity of the gall-bladder enables it to accommodate even considerable quantities of inflammatory products without these latter becoming under much tension. This attribute of distensibility also explains the infrequency of perforations of the gall-bladder, as compared with the appendix. Operations during the acute attack are indicated by a marked intensity of the local and general manifestations, otherwise the operation can be postponed until the quiescent period after the attack. To delay and procrastinate until an empyema or gangrene of the gall-bladder has taken place, or until cholemia, infective cholangitis, obstructive jaundice or perforation has occurred, is unjustifiable and unwarranted. The mortality after early operations is 2 to 3 per cent., whereas the death-rate in the later complicated stages of the disease rises over 50 per cent., even in the most expert hands.

Dr. Berg's conclusions may be stated as follows. (I.) Indications for medical treatment; cholecystitic pain or attacks of biliary colic, in either case unattended with fever. II. Indications for medical treatment; (1) operations of choice, undertaken in the quiescent period, with the object of avoiding serious complications; a simple procedure and followed by 2 to 3 per cent. mortality. (*a*) Severe cholecystitic pain or oft-repeated biliary colic, persisting in spite of medical treatment, in virtue of which symptoms the patient becomes an invalid and incapacitated for work. (*b*) After the first attack of acute cholecystitis, associated with fever. (2) Compulsory operations; undertaken at any time of day or night, often amidst unfavorable surroundings and in patients who are skeptic, emaciated and of low vitality. Difficult and laborious procedures and attended with high mortality—50 per cent. (*a*) Intensely acute attacks of cholecystitis. (These may be the first indication of calculous disease, but usually follows previous milder attacks.) (*b*) Hydrops, empyema, gangrene or perforation of the gall-bladder, cholemia, abscess of the liver, and diffuse peritonitis.

Dr. A. G. Gerster opened the discussion and stated that he wished to insist that the most important point in the treatment of cholelithiasis is first to make a diagnosis. This is not always easy. Some cases are diagnosed by the patient himself, but others are very difficult of diagnosis and tax the skill of the most experienced. This is particularly the case with some women whose liver and gall-bladder are situated high up in the abdominal cavity and covered by the lower part of the right thoracic wall. Dr. Gerster considers that a well and carefully established anamnesis, particularly as to paroxysmal pains in the abdomen, the most important aid in diagnosis. After eliciting a history pointing to gall-stones, careful palpation may reveal a pear-shaped tumor which ascends and descends with the movements of respiration. He then emphasized the importance of abdominal palpation in cholelithiasis. As to treatment, Dr. Gerster is of the opinion that medical treatment is to no avail, excepting for immediate relief. Surgical treatment is the only means of permanently curing these sufferers.

Dr. A. E. Isaacs took exception to the statement that biliary colic without suppuration in the gall-bladder is not attended by elevation of temperature. He has frequently observed cases of acute cholelithiasis in which the thermometer registered from 102° to 105° F. While Dr. Isaacs does not exclude the possibility that the pus in the gall-bladder might in these cases have followed the exit of the stone, still the fact remains that elevation of temperature during an attack of biliary colic is no proof of dangerous suppuration in the gall-bladder. Dr. Isaacs does not think that operation is indicated in all cases of cholelithiasis. Many people have several attacks of biliary colic and then remain free from it for the rest of their lives.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Annual Meeting, Held January 13, 1902.

The Vice-President, William McCollum, M.D., in the Chair.

Election of Officers.—The following officers were elected: President, Dr. Andrew H. Smith; Chairman for the Borough of The Bronx, Dr. S. Carrington Minor; Member of the Executive Council, Dr. Reynold W. Wilcox.

Treatment of Urethral Strictures.—A discussion on the treatment of urethral strictures was opened by Dr. Ramon Guiteras. Strictures were classified, he said, as anterior and deep, the former being situated between the meatus and a point within an inch of the cut-off muscle and the latter between this point and the posterior urethra—thus including the membranous urethra and the inch in front of it. He reviewed the causes, symptoms and diagnosis of stricture, stating that the most dangerous symptom, or rather complication, was an acute attack of retention. It usually occurs in strictures of small size, deeply seated, when, owing to some exposure, dissipation or reinfection, there has been sufficient congestion about the stricture to render it impassable, or nearly so. Usually strictures of small size, that is those below No. 15 French, are the ones that give rise to serious urinary symptoms. In general terms it may be said that all strictures, whether large or small, anterior or deep, that can be dilated, should be treated in this manner. All others should be operated upon if they give rise to symptoms warranting such a measure. In order that the urethra may be intelligently examined, a small meatus, due to congenital narrowing or linear stricture just behind the meatus, should be cut to No. 32 or No. 34 French, if, as is usually the case, it cannot be dilated.

Dilatation.—The three methods of dilatation are the continuous, the gradual, and the rapid. The first is usually employed in strictures of small caliber which admit only a filiform or a very small olivary woven catheter. After one of these instruments has been introduced it should be allowed to remain in position for twenty-four hours, the patient passing his urine along its side. A larger one is then introduced, and allowed to remain for the same time; and so on, until the dilator or sound can be introduced and the narrowing can be gradually dilated. Gradual dilatation consists in passing dilators or sounds every few days until the urethra has been stretched to the normal size, or as near the latter as possible. In rapid dilatation the size of the urethra is increased in one or two sittings, and it is particularly applicable to such patients as feel that they cannot submit to operation and have not the time for gradual dilatation. Personally, Dr. Guiteras said, he did not favor this method, although he had seen the most admirable results accomplished by the Newell dilator. Most dilators are of large size (over No. 15 French) but the Newell instrument is No. 8 French, and is passed connected with a filiform guide. Dilators are especially efficient in the treatment of strictures of medium caliber, *i.e.*, from No. 18 to No. 20 French, and the best instruments are those of Oberlaender and Kollman. Dilators should never be introduced unless enclosed in a rubber cover, well lubricated with sterilized lubrichondrin; and in office work it is well to boil the instrument, with the cover on, before introducing it. Sounds, of course, are and always will be useful, their employment constituting the most general means of dilatation; and the heavier the sound, the better. In dilating either with sounds or with dilators the stricture should not be increased more than one or two millimeters at each dilatation, and afterward the canal should be washed out with a nitrate of silver solution of a strength varying from 1-600 to 1-4,000.

Operative Treatment.—All strictures that cannot be dilated should be cut. All narrowing of the navicular fossa should be cut on the floor of the urethra with a blunt-pointed bistoury, with the exception of cases of balanic hypospadias, in which the incision should be directed upward to the roof. Anterior strictures of large size (over No. 15 French) that will admit an Otis urethrotome should be operated upon with this instrument, the incision being made in the median line of the dorsum of the canal. Those of small size should be cut with the Maisonneuve urethrotome in the roof of the canal. Strictures of sufficiently small size to give rise to annoying symptoms should be cut externally through the peritoneal urethra on a grooved guide, tunneled sound, or catheter that has been passed through the urethra beyond this point. When anterior and deep strictures are both present the method adopted should vary according to the circumstances of the case.

Having described the method of operating in impermeable strictures, Dr. Guiteras expressed the opinion that the actual number of such strictures was very small, and said that in the last five years he had encountered but one case in which he was not able to pass an instrument. With filiform bougies and a good lubricant he thought that almost any stricture could be passed, especially if the patient be put to bed and treated with diluents, hot sitzbaths, hot applications, and antispasmodics for a few days. He said he spoke strongly on this subject of passing guides through a stricture before operating, because he felt convinced that the patient stands a much better chance of recovery when the surgeon can make a straight clean cut through a stricture on a guide than when he flounders about in the dark in a bleeding perineum, stabbing at the neck of the bladder in the hope of opening it behind the stricture. He aways tries to pass a filiform or flexible guide before operating; if not successful and if the case is not an urgent one, he postpones the operation and makes further attempts on other occasions, until he succeeds in passing it. After it is once passed it is tied in until the day and hour of operation, and sometimes a patient remains in bed for three days before he is operated on, passing his urine by the side of the instrument thus retained.

Treatment Before and After Operation.—The treatment of a patient before operation consists in promoting free diuresis with large quantities of water, the administration of urotropin (15 grains three times a day), and the washing out of the bladder twice a day, provided the stricture is of sufficiently large caliber to permit the passage of a catheter. After operation the free diuresis and use of urinary antiseptics should be continued. After internal urethrotomy sounds should be passed at the end of forty-eight hours, and then every two days while the patient is confined to the house or hospital. After external urethrotomy the whole urethra is flushed out with hydrogen peroxide, and then with boric acid solution. A large thick-walled catheter, No. 40 French, is inserted through the perineal opening, pinned to the side of the incision and packed about with gauze. While the urethra and bladder are washed out twice a day with boric acid solution, the dressing need not be changed for forty-eight hours, when the tubes are taken out and sounds passed. The sounds should be passed every two days, the tubes (which should be employed for from four to six days) always being withdrawn before their passage. For a considerable time the

patient's bladder should be washed out through a catheter with a weak solution of nitrate of silver.

Pathology of Stricture.—Dr. Robert H. Greene said he believed that all pathologists were agreed that stricture follows a granuloma or ulceration which in the great majority of cases is preceded by a urethritis. This process may make a soft band in the urethra which has often been operated upon for stricture. It is in reality not a stricture at all. These facts are generally acknowledged; but there are two questions which have not been definitely settled, viz.: (1) How long does it take this cicatricial tissue to develop in a urethra which has not been wounded with instruments? (2) Does this process of cicatrization ever go on in a urethra not wounded to such an extent as to necessitate a cutting operation? Operations upon strictures of large caliber had apparently been done away with in the last few years, and he thought that surgeons were deserving of much credit on this account. It seemed to him that at the present time the majority of authorities consider stricture, following urethritis, of such severity as to require operation quite rare in those under forty. In men older than that the cicatricial tissue forms faster. The second question, Dr. Greene said, was very difficult to answer because almost all the strictures which are cut give a history either of previous operation or of the careless use of instruments. Personally he believed that a man who has never had his urethra wounded, thereby facilitating the formation of cicatricial tissue, will never have a stricture so severe as to require cutting, although such stricture may require dilatation. In one of the hospitals with which he was connected he saw a number of cases in which there was such a mass of connective tissue in the bulbomembranous urethra that an operation was required. He generally did a perineal section and also an internal urethrotomy, if required, using either an Otis or a White urethrotome. As to external urethrotomy, he thought the incision should be as limited as possible. Whether there were any hemorrhage at the time or not, the parts should be well packed during the operation, as he had seen severe secondary hemorrhage in cases in which this was neglected. In conclusion he exhibited a new filiform bougie manufactured by Tiemann, which was constructed of catgut and which could sometimes be made to pass when the ordinary filiform bougie failed. It was superior, he thought, to the Banks bougie, which was made of whalebone.

Characteristics of True Stricture.—Dr. Wm. K. Otis said that the formation of stricture was practically the formation of scar tissue which entirely surrounds the urethra. Unless the scar tissue does entirely surround the canal stricture does not exist. Plaques on one side do occur and are composed of cicatricial tissue, but they cannot be detected by means of bulbous bougies, etc. When, however, such tissue surrounds the urethra it goes on steadily contracting, and so gradually narrows the caliber of the canal at one point until it becomes an annoyance to the patient. After dilatation the trouble will return, and it will do so indefinitely whenever the dilatation is discontinued. When a stricture had become thoroughly organized he did not believe it could be cured by dilatation. As soon as it has been divided by a clean cut the stricture ceases. The ends spring apart. The cicatricial tissue may go on contracting, but after it has been severed with the knife it no longer diminishes the lumen of the canal. He could not agree with Dr. Greene, and said that he had known of many instances in which instruments had never been used on the urethra in which strictures had gone on to retention of urine and in which the smallest filiform bougie could not be passed.

Narrow Strictures Must be Cut.—Dr. Otis said that when it was necessary to operate on a patient he did not take as much time as formerly in trying to pass filiform bougies. When filiform bougies can be passed only with difficulty, or when it is necessary to employ special forms of such bougies, the case is one that requires operation. The stricture can no doubt be dilated, but the patient's life is in danger the moment he gets beyond the reach of a competent surgeon.

Patience and Perseverance Generally Successful.—Dr. James Pedersen said there were undoubtedly many cases which could be better treated by dilatation than by cutting. He had seen strictures so small that a filiform bougie could scarcely be made to pass, yet in which careful manipulation proved very satisfactory. It was true that the stricture was not really cured, but the patient had been placed in a condition which made him quite independent of the surgeon. In illustration he narrated a remarkable case of Dr. Bangs' in which patience and perseverance had been entirely successful in the end, while the patient had not been at all debarred from his usual business and pleasures.

Dr. Robert W. Taylor said he had no faith in what are called large strictures. When preparing his book he made a great effort, through efficient and painstaking assistants, to find out what these cases were, and he had been able to secure only one instance. In this case there was a small band, about half an inch in length, which ended to the right of the median line. Only twice in the last two years had he seen a true stricture in men under twenty-five, and in one of the cases the patient had become infected when only twelve years old. Under the age of thirty-five men have what is known as soft stricture, consisting of granulation hyperplasia.

Divulsion Condemned.—Dr. Taylor condemned in the strongest terms the dilators devised by various surgeons. He designated Holt's as "an instrument of death," and said he hoped that Oberlaender's and Kollman's would never come into vogue in this country. In the abandonment of such ruthlessly dangerous instruments he thought there had been a great advance in the last few years. It was the mild force that accomplished the desired purpose. Gradual dilatation with straight sounds or olivary bougies should be practised. Plenty of time should be taken with stricture cases, and the sounds should not be passed too often. Above all, careful and systematic treatment of the urethra with nitrate of silver solutions is essential. By these means the great majority of cases can be cured without cutting. When the latter is necessary the Otis urethrotome is the most satisfactory instrument for the purpose. In cases in which after a persevering trial of dilatation a sound larger than No. 15 cannot be passed without causing great irritation, it is advisable to practise external urethrotomy first and afterwards internal urethrotomy.

JOINT MEETING OF THE CHICAGO MEDICAL SOCIETY WITH THE CHICAGO SOCIETY OF INTERNAL MEDICINE.

Held January 29, 1902.

Symposium on Cirrhosis of the Liver.

The first paper was read by Dr. Arthur R. Edwards, who said that Rosenstein suggested three classes of cirrhosis, namely, (1) the genuine contracted liver, the cirrhosis of Laennec, an analogue of the genuine contracted kidney; (2) the hypertrophic icteric cirrhosis, an analogue of the parenchymatous nephritis; (3) the

hypertrophic mixed form, in which hypertrophy and atrophy combine, an analogue of the secondarily contracted kidney.

Gilbert and Surmont made the following classification: (1) Biliary cirrhosis. (*a*) Hanot's biliary hypertrophic cirrhosis; (*b*) biliary cirrhosis due to obstruction of the bile vessels, with infection; (*c*) experimental biliary cirrhosis due to ligature of the bile vessels and infection of the same; (*d*) biliary cirrhosis in the lower animals due to distomata, eggs of the nematodes, coccidium, etc. (2) Vascular cirrhosis. (*a*) From exogenous poisons, *e.g.*, alcohol, lead, phosphorus, etc.; (*b*) from autogenous intoxications, *e.g.*, dyspepsia, gout, diabetes; (*c*) infections or toxemias, tuberculosis, syphilis, malaria, exanthemata, etc.; (*d*) arteriosclerotic; passive congestion. (3) Lymphatic cirrhoses. Capsular cirrhosis; perihepatitis.

The classification he had suggested was attempted rather with a view of including the principal conflicting clinical and pathological divisions than of offering an infallible or as strictly scientific arrangement of the varieties of cirrhosis of the liver as Chauffard's. (1) Capsular cirrhosis. Also known as glissonian or lymphatic cirrhosis. (*a*) Chronic perihepatitis, isolated or part of a chronic peritonitis. (*b*) Portal vein syphilis, also vascular in origin. (2) Vascular cirrhosis. (*a*) Hepatic vein. (*b*) Stasis cirrhosis (cyanotic induration). (*c*) Laennec's cirrhosis; also that of Brieger and Sabourin, known as bivenous cirrhosis. (3) Portal vein. (*a*) Laennec's cirrhosis or atrophic. First stage, pseudohypertrophy; second stage, atrophy. (*b*) Hypertrophic alcoholic cirrhosis, like Laennec's, only remaining large; fatty cirrhosis. (*c*) Cirrhosis from portal vein, syphilis, and from pyelothrombosis. (*d*) Arteriosclerotic cirrhosis. (4) Biliary cirrhosis. (*a*) Obstruction, retentions, icterus and cirrhosis. (*b*) Biliary or hypertrophic, in French sense (Hanot's cirrhosis), with icterus or without icterus. (5) Mixed cirrhosis. Vascular and biliary varieties combined in varying proportions.

Cirrhosis in Childhood.—Dr. Frank X. Wales read a paper on this subject. Cirrhosis of the liver was one of the most uncommon diseases that occurred during infancy or childhood. The cirrhoses belonged to the decadent period of life, and it was only under the most unusual conditions that they were encountered during its ascendancy. Though similar morbid factors be evolved within the economy of the child that in the adult led to a gradual parenchymatous decay and interstitial overgrowth, still in the child the nutritive and reparative powers of the individual were sufficient to sustain and restore the hepatic parenchyma, even though seriously damaged. In children, who die as a result of some overwhelming sequel of the acute infectious diseases, the liver frequently was found to be the seat of an extensive cellular infiltration of the connective tissue, with a granular, fatty, or even necrotic degeneration of the epithelium, and so often was this seen that one might believe there was always more or less hepatic inflammation in the severer cases of infection. Klein examined the liver in eight consecutive autopsies on scarlet-fever patients and discovered acute hepatitis in all. Moreover, sufficient corroborative evidence was found clinically in the enlarged livers and subjaundiced skins that were present in the many severe infections that ultimately recovered to assume that the acute hepatitis was not confined to the lethal cases. Despite the frequency of this acute hepatitis, it was most unusual to meet with a case in which there was the slow productive overgrowth of subsidiary tissue at the expense of the granular elements which constituted the morbid picture of cirrhosis. Cirrhosis was an advanced lesion, slow and tardy in its evolution, and demanded time for its development. It was so rare a disease in the young that those who had had the largest clinical experience could count their cases in the units. Though the recent literature had greatly multiplied the number of recorded cases and some had advanced the statement that the disease was not uncommon in the child, yet the infrequency of the disease could be sufficiently substantiated by quoting the statements of a few of the greatest clinicians. Baginsky had seen four cases. Henoch had never seen the disease fully developed in children. Charles West, among 70,000 sick children, saw cirrhosis but four times. Frerich saw but one.

Male children were afflicted more often than female in the proportion of five to one. In Palmer's group, the ages varied from one month to eighteen years, and fifty per cent. of these occurred between the ninth and fifteenth years. An alcoholic history had been obtained in less than twenty per cent. of the recorded cases. In a few of these the amount of alcohol taken daily for a considerable period of time had exceeded a pint of brandy, but in most of them only a small quantity of spirits had been drunk. While the influence of alcohol in the production of cirrhosis in children was decisive, it was not so consequential as in the adult. Syphilis was mentioned as an etiological factor in about ten per cent. of the cases. Tuberculosis was a relatively frequent causal factor. The acute infectious diseases had been considered as potent causative exciters, but in no case had the evolution of the cirrhosis been unequivocally connected with the acute infections, nor had the infections occurred with greater frequency than might be considered accidental, and perhaps not oftener than in the average run of children. Chronic sepsis, particularly where there had been a chronic peritonitis, had been an occasional factor. Cirrhosis of the liver, secondary to the nutmeg liver of heart disease, had occurred only a few times. Thompson had collected a number of instances of obliteration of the bile-ducts in the new-born which was followed by cirrhosis.

Dr. Wall then discussed at length the symptomatology, the diagnosis, prognosis and treatment of cirrhosis of the liver in childhood. Of treatment of cirrhosis of the liver in children he said that therapy up to now had been fruitless. Could the disease be anticipated before the advent of the cirrhosis, one might hope for much by withdrawing those factors which might have any baneful influence upon the child, and by giving careful attention to the hygiene and diet. Much had been claimed, particularly by the French school, for an exclusive milk diet, even if the cirrhosis be established. The use of the so-called resorbent waters, such as Carlsbad, the inunctions of gray salve, and the rational fulfilment of the symptomatic indications grasped the present possibility.

Pericarditic Pseudocirrhosis of the Liver.—Dr. James B. Herrick read a paper with this title. In 1896 Pick described three cases to the symptom-complex of which he gave the name pericarditic pseudocirrhosis of the liver. Clinically, they presented relatively slight edema of the lower extremities, enlarged liver, and rather obscure cardiac findings. These cases showed postmortem adhesive obliterating pericarditis; adhesive pleuritis, and changes in the liver described as nutmeg liver, cirrhosis of the liver, coarsely granular liver. From his studies of these cases and other similar ones reported by other observers, he concluded that this symptom-complex resembling true cirrhosis was caused by a late pericarditis that induced circulatory disturbances in the liver, leading to an increase of connective tissue, in this way producing portal stasis and ascites.

Dr. Herrick referred to the importance, from a diagnostic standpoint, of inquiring into the past history for

symptoms suggestive of preceding pleurisy for pericarditis, and said that the physical signs of active or healed pleurisy should be sought for as well as those of perihepatitis. The coarser signs of pericardio-mediastinitis, such as the systolic retraction interspaces, the diastolic rebound, the paradoxical pulse, the fulness of the veins in the neck, and the feeble apex impulse, should also be sought for.

Dr. Herrick referred to three cases of this disease that had occurred in his own practice, in one of which an autopsy had been secured at which an adhesive pericarditis with calcification had been found, with extensive hyperplastic pleuritis and cirrhosis of the liver, all being due to tuberculosis. The clinical features of this case had corresponded very closely to those of the third case described by Pick. The other two patients were still living, but showed enlargement of the liver, pronounced ascites, evidence of fluid in the pleura, or of adhesive pleurisy, with symptoms and physical findings suggestive of pericardial adhesions.

He agreed with Strümpell that the cases were not all of one pattern and, though there was some justice in the criticism that had been offered to Pick's explanation of the occurrence of ascites and that one could absolutely not rule out the influence of local peritonitis, he thought further that there was a possibility that the trouble while originating in the pericardium might start from this point as a center and involve the contiguous pleura and peritoneum; in other words, that passive congestion of the liver was not an ample explanation for all the phenomena of the disease. While Pick's observations had been preceded by somewhat similar observations of others, and while one might criticize somewhat his line of reasoning, full credit must be given to Pick for having most accurately described the symptom-complex and for calling the attention of the profession to this peculiar condition.

Medical Treatment of Cirrhosis of the Liver—In a paper with this title Dr. John A. Robison stated that cirrhosis of the liver was incurable if the fibroid stage had supervened. Prior to this stage there was a small chance for recovery, especially in the syphilitic cases. The medical treatment should be considered, therefore, under three headings: Prophylaxis, the first stage of treatment, and the palliative treatment. There was no doubt that there was an hereditary predisposition to the disease in certain families, especially in those having a gouty diathesis. He believed a long line of tipsy ancestors, who had died of cirrhosis of the liver, might engraft on their progeny a susceptibility to the disease. The knowledge of such a tendency should be of great value to the patient in conducting his habits of life in a channel in which toxic products would not produce the cirrhosis.

The prevention of the disease would be easy in a large number of cases if physicians could prevent the toxic influence of ingested and autochthonous poisons. But unfortunately for the cirrhotic victims, their medical adviser's advice was seldom asked and less often followed until active signs of the disease were present. By this time the process had been aroused by poisons, infections, or arteriosclerotic changes. The problem, then, was how to arrest the disease, or if this be impossible, how to alleviate it. If the use of alcoholics be the cause of the disease, it should be stopped If malaria, the proper curative measures should be adopted; if the disease was of syphilitic origin, active antisyphilitic treatment should be established. If the cirrhosis was manifestly the result of disease of other organs, treatment should be specifically directed toward them. No matter what the etiological factor, the general management of the patient, the supervision of his daily habits, exercise, diet, and the treatment of the various symptoms must receive constant attention. The diet should be plain and simple, free from alcoholics, strong condiments, or spices, relishes, sauces, fried food, pastry, and sweets. Vegetables and fruits might be allowed, and milk should be a main staple. So far as possible, the patient should receive plenty of rest and fresh air. An outdoor life is beneficial and a sojourn in mild climates, especially at mineral spring resorts, was often beneficial. In the early stage the administration of calomel was recommended by many, on the theory that mercurials had the power of causing the absorption of fibrinous exudations. But there was no evidence to prove that mercurials had such power in the case of proliferation of connective tissue; hence the good results obtained in cases in which mercurials had been given must have been due to their action on the intestinal tract. Vomiting should be allayed by bismuth and alkalies, with the addition of thymol, resorcin, creosote, etc., if fermentative dyspepsia is present. The routine treatment of ascites in the past had been to give hydragogue cathartics and diuretics, but it was like trying to empty a vessel by pumping out as much or less water than flowed in. The drug treatment was unsatisfactory, and paracentesis should be resorted to early. The union of the liver to the abdominal wall with omentopexy would relieve the portal circulation before the ascites was established. Paracentesis should be performed early, and often, if the fluid rapidly accumulated, as the pressure embarrassed respiration and the heart's action. Opium, absolute rest, and the withholding of food from the stomach, were essential in the treatment of hematemesis. In case the diarrhea was intractable, large doses of the bismuth compounds were the safest remedies. In many cases it could not be checked, and it would be necessary to support the patient by administering the concentrated foods and alcoholics. Exhaustion should be combated by the use of tonics and restorative remedies.

BOOK REVIEWS.

Memoirs and Letters of Sir James Paget. Edited by Stephen Paget, One of His Sons. Longmans, Green and Co., New York.

There is nothing that appeals to the thinking man as the biography of another who has worked and achieved along his own lines; and there is, perhaps, nothing that so comforts the one who is striving as the knowledge that he who has won fame, has done so through no trick of fortune or accident of birth, but through the hardest work, in spite of the worst luck, and in the face of every discouragement.

The name of Sir James Paget shines before medical men with a brilliancy that dazzles them into the belief that he was born to the friendship of the great, and predestined to have kings and queens among his patients. As a famous surgeon, as an orator, an author and a scientist he is known to every one; but who knows of his frugal hard-working youth, as a surgeon's apprentice in a country town, where he taught himself French by translating Bichat's *Anatomie Générale* and took his recreation in making botanical and zoological collections?

This volume, containing his modest autobiography and many letters, is made doubly interesting by parallel commentaries written by his son, supplying information about the hospital in which he was a pupil, the hospital museum of which he was the curator at £100 per year, and, finally, St. Bartholomew's Hospital where he was for many years the warden and for many more the most popular lecturer.

No physician who is trying to keep abreast of scientific thought while earning his living can read this book without marveling at the man's energy by which he was able to fill an onerous position at a great hospital, lecture to crowded classes, support a family of six children, shoulder his family's debts, and, at the same time, be the exponent in England of the vast new scientific movement that was being born in Germany, in the laboratories of Muller and Virchow. And how many who have striven will take comfort from the frank confession, "During the first seven years after obtaining my diploma my largest income from practice was £23. 13s.; and until I had been a surgeon for sixteen years it had never exceeded £100."

After following the crowded details of his busy life, and the unnumbered hours of work in which he acquired his skill, and having passed with him through the anxiety of the risk in taking a house and launching out into surgical work, it gives one a positive thrill to read that his income steadily increased until it exceeded £10,000. Of this time he writes, "In looking back on this success I feel quite unable and unfit to judge how far it was due to my fitness for practice. I was not disqualified by any of the gravest hindrances to success, as by being habitually idle, time-wasting, unbusiness-like, unpunctual, uncivil, unable to work with others—faults which I have seen singly or together spoiling the careers of men whose knowledge might have brought them great success. Neither, on the other hand, could I assign any part of my income to self-advertisement, or sheer impudence, extortion, unfairness, or mere greediness. I think it was all so far fairly earned that I might be regarded as an example of the rule which I have often tried to impress on pupils: That any one with a safe knowledge of his profession, and free from such faults as I have enumerated, may be as certain of success in the practice of medicine or surgery, or both, as in any other business in life."

With the honors of his later life, his friendship with the great men of the century, the royal patients, his title, and his fame, all physicians are familiar, but it is a delight to read of the gradual attainments of the rewards for his incessant indefatigable work and patience, for one cannot help but feel, after this intimate revelation of his daily life, that he was as lovable as he was clever, and that he was as great as he was famous.

A Practical Guide to the Administration of Anesthetics. By R. J. Probyn-Williams, M.D., Senior Anesthetist and Instructor in Anesthetics at the London Hospital; Lecturer on Anesthetics at the London Hospital Medical College; Assistant Anesthetist at the Dental Hospital of London. Longmans, Green & Co., London, New York and Bombay.

To furnish a book on anesthesia which is more brief and accessible than the larger works of Hewitt or Buxton is the design of the author. The opening chapters all too briefly consider the effects of normal anesthesia, the various stages of general anesthesia, and the difficulties and dangers attending it. Nitrous oxide, ether, chloroform, and their various mixtures are given long and important chapters. The author considers ether safest in abdominal surgery, but finds that in some operations the deeper respiration caused by ether is troublesome to the surgeon, or a long operation may be accompanied by such excretion of mucus and saliva as to increase the danger of bronchitis or pneumonia. Then, too, ether stimulates so much that when its effect is worn off a grave condition of collapse may supervene. He recommends beginning with gas and ether and changing, after half an hour, to the A. C. E. mixture, or even to chloroform. The use of anesthetics in midwifery is dismissed in two paragraphs. The author gives the anesthetic which he prefers at different ages, and closes with a very brief chapter on local anesthesia. Undoubtedly this book is a good one for the student to have, and experienced men may glean from it valuable suggestions.

Transactions of the American Otological Society. Thirty-fourth Annual Meeting, July 16, 1901. Vol. VII. Published by The Society. Mercury Publishing Company, Printers, New Bedford, Mass. 1901.

This number of the Society's Transactions contains the portrait of the lately-deceased Dr. Henry D. Noyes, a life-long member and one of the founders of the Society, whose memorial, written by Dr. Gruening, accompanies it.

The ten papers presented were not of that absorbing interest which one would naturally expect in papers read before the representative national society. The herpes cases associated with mastoid disease and ending in death from meningitis make valuable records, though no attempt is made to explain them. Knapp's cases of sinus thrombosus are in the full tide of advanced work in aural surgery and they elicited full discussion.

The usual Index of Otological Bibliography is really the most valuable feature of the volume.

Manual of Bacteriology. By Herbert W. Williams, M.D., Professor of Pathology and Bacteriology, Medical Department of the University of Buffalo. Second Edition, Revised and Enlarged. P. Blakiston's Son & Co., Philadelphia.

The second edition of this manual appears within three years after the issue of the first edition. The writer regrets in the preface to the present edition that the additions to the text deemed advisable by the progress in bacteriology necessitate a slight increase in the size. The idea has evidently been to keep the book strictly within the limits of what deserves the designation "manual" and this has been quite successfully accomplished. The little work is for its size as complete as could well be desired and yet it is no mere dry collection of facts and principles, but a tempting morsel out of the heart of advancing science. Some of the illustrations do not seem to serve any definite purpose in adding to the value of the book.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Outlines of Anatomy. By Dr. E. W. Holmes. Demi 8vo. 182 pages. Second Edition. New Era Printing Co., Lancaster, Pa.

Lectures on Chemical Pathology in Its Relation to Practical Medicine. By Dr. C. A. Herter. 8vo, 461 pages. Lea Brothers & Co., Philadelphia and New York.

A System of Physiologic Therapeutics. Edited by Dr. S. Solis Cohen. Vol. VI., Dietetics. By Dr. N. S. Davis, Jr. 8vo, 372 pages. P. Blakiston's Son & Co., Philadelphia.

Directions for Class Work in Practical Physiology. By Dr. E. A. Schäfer. 8vo, 76 pages. Illustrated. Longmans, Green & Co., New York, London and Bombay.

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SPECIAL ARTICLE.

THE CRAIG COLONY PRIZE ESSAY—SEROTHERAPY IN EPILEPSY.[1]

BY CARLO CENI, M.D.,

OF REGGIO-EMILIO, ITALY;

DOCENT OF NEUROPATHOLOGY IN THE UNIVERSITY OF PAVIA; MEDICAL INTERNE IN THE PSYCHIATRIC INSTITUTE OF REGGIO-EMILIO.

I HAVE availed myself these last years of the rich material offered by our institution for the study of the pathogenesis of idiopathic epilepsy, that I might, with new data, strengthen the autotoxic theory, a theory which is undergoing in neuropathology a larger and larger development. Evans, Régis, Chevalier, Lavaure, Jacobson, Féré, Voisin, D'Abundo, Herter and others agree in admitting that a toxic irritating cause, probably of a biochemical nature and elaborated by the organism, must be of capital import in the determination of the epileptic fit. Unhappily none of the numerous searches for a basis for this theory has afforded a plausible demonstration of the assumed toxic substances, and the different ways that different authors have followed have led to such divergent and contradictory results that we must regard the important question as still unsolved.

I have often endeavored to study this subject in accordance with the views of these different authors, but the results I have obtained, especially in studying the toxicity of urine and blood by means of injection in animals, have convinced me of the great difficulty of this kind of research in which the experimental methods at our disposal are so insufficient and inexact.

Recently I have tried the intra-albuminous injections of epileptic serum (according to Féré's method) into hen's eggs and obtained such convincing results that I flatter myself I have a new and valuable confirmation of the autotoxic theory of epilepsy.[2]

I think we cannot explain by any other interpretation the constant and often remarkable increase of the teratogenic power of the blood serum of epileptics in general, compared with that of healthy individuals, as shown by my researches. Indeed, even if we were to neglect the close relations between the teratogenic and the toxic power of poisons in general, as Féré indicates, we should not know by what other organic phenomenon to explain the remarkable oscillation of the teratogenic power of epileptic blood, other than by the modification of cellular changes, a modification that is admitted for the toxic power.

It is even probable that the circulating toxic principles which have the property of deeply interfering with the normal development of the embryo, either by acting directly on its elements or indirectly through perturbations induced into its annexes,[1] are closely connected with those poisons which, acting as simple irritants upon the formed element, produce the epileptic phenomena.

I have found a series of facts indicating an intimate relation between the degree of the teratogenic power of the blood in epileptics and the importance and nature of the clinical phenomena. This strongly confirms the previous hypothesis. Invariably the teratogenic property of the blood of such patients has always appeared to be in direct relation to the severity of the disease and the date of its beginning. So I feel authorized in entertaining the view that there is a relation between the teratogenic principles and the circulatory toxic ones to which so high an importance is now given in the etiology of epilepsy.

I have demonstrated and strengthened these facts through hundreds of experiments (see preceding note) which have been carried on with great care as to technic, and with the observance of certain rules of my own which I have thought necessary to introduce in the method of intra-albuminous injections.

However, even if the autotoxic theory of epilepsy were not to gain through my researches any step forward, I have referred to them in order to put this question upon a practical ground, although its place in science is not yet so firmly fixed as to be beyond the pale of active discussion.

Now, the belief grows more and more fixed in my mind from the results just referred to that the epileptic phenomena are the consequence, at least for the greater part, of toxic products circulating in the organism. This, together with the encouragement offered by the modern serotherapy, which is grounded upon specific and causal remedies, has led me to ask myself whether in idiopathic epilepsy it would not be possible to discover a similar method of treatment.

Our imperfect notions concerning the pathogenesis of this disease allowed me to proceed only by experiments and most cautiously; therefore I began without preconceived opinions, only being sure that whatever the results might be, even if quite negative, they would still contribute to the pathogenesis of a disease which is still so obscure.

As the blood-serum in epileptics, in my opinion, contains the soluble epileptogenous principles in a quantity varying with the severity of the disease, I tried first to study the effects of small doses of epileptic serum injected into other epileptics. My object,

[1] The Craig Colony Prize for Original Research in Epilepsy is a prize of $200, which has been offered for the past three years by Dr. Frederick Peterson of New York for the best original, unpublished contribution to the pathology and treatment of epilepsy. In 1899 and 1900 the Prize Committee, consisting of three members of the New York Neurological Society, decided that the prize should not be awarded. The committee for the year 1901, consisting of Drs. G. W. Jacoby, Pearce Bailey, and Ira Van Gieson, recommended that the prize be awarded to Dr. Carlo Ceni of Pavia, Italy, for his essay entitled "Serotherapy in Epilepsy." The report of the committee was approved at the meeting of the Board of Managers of Craig Colony, held at Sonyea, N. Y., on October 8, 1901. By the terms of the competition the successful essay became the property of the Colony. In order that it might receive the widest recognition possible, the committee recommended its publication in a general medical journal. In addition to its present appearance in the MEDICAL NEWS it will also appear in the Medical Report of the Colony, soon to be published.

For the year 1901-2 Dr. Peterson renews the prize of $200 for the best original unpublished contribution to the pathology and treatment of epilepsy. Originality is the main condition. All manuscript should be submitted in English. The prize is open to universal competition. Each essay should be anonymous and accompanied by a sealed envelope containing the name and address of the author and bearing upon the outside a motto or device, which is to be inscribed also upon the essay. All papers received will be submitted to a committee, consisting of three members of the New York Neurological Society, and upon the committee's recommendation the award will be made at the annual meeting of the Board of Managers of the Craig Colony, October 14, 1902.

Manuscripts should be sent to Dr. Frederick Peterson, 4 West 50th Street, New York City, on or before September 30, 1902. The successful essay becomes the property of the Craig Colony and will be published in its Medical Report.

[2] Riv. sper. di Fren., Vol. 25, 1899.

[1] Centralblatt f. Nervenheilkunde, Nov., 1899.

founded on the principles of modern serotherapy, was to find out if the specific poison would in time introduce into the organism in which it circulates any property that might be of therapeutic value to other less severe and earlier cases. Such experiments were made upon several patients, but I never obtained any result worth mentioning. I next wished to determine if by progressive doses of the same serum I could render an epileptic more resistant to the dangerous action of the poison that circulates in him. In other words, it was my object to determine the possibility of establishing an immunity, whatever its degree might be, against a poison formed by the organism itself; an immunity such as may be obtained through poisons in general and particularly through poisons of a bacterial origin.

Serotherapy was first applied in mental diseases by Toulouse for alcoholic psychosis (Biological Society of Paris, meeting of March 28, 1896). He administered to dogs large doses of alcohol for a week, in order to excite in their organism the formation of products which would be curative in alcoholic intoxication. The serum of these dogs was injected into a patient suffering with acute alcoholic delirium. The patient was remarked to be sensibly better on the following day. But Toulouse did not express his opinion about an anti-alcoholic serum.

New experiments of serotherapy in mental cases, supposed to be of toxic origin, were afterward announced by Messrs. Mairet and Vires at the Third French Congress of Internal Medicine, which was held at Nancy, August, 1896. These authors injected artificial serum into insane, melancholic and epileptic patients without any beneficial results whatever.

Rabbit-serum and dog-serum were also injected into hysterical, epileptic, maniacal and melancholic subjects. It did not prove beneficial to the hysterical nor to the epileptic. In the others there was improvement in general nutrition. In melancholia there was also some psychic benefit, especially when dog-serum was used. Later Messrs. Mairet and Vires injected two women suffering from severe mania with the serum of a recovered maniac man. One of the cases presented no benefit; in the other a physical and psychic amelioration resulted.

In one of Dr. Bianchi's preliminary notes on serotherapy in phrenosis, which was published almost simultaneously with Toulouse's, Mairet's, and Vire's communication, in the *Riforma Medica* (1896, Vol. III., p. 502), it was stated that in the asylum at Imola, Dr. Brugia was making studies upon serotherapy on the assumption that many perturbations of the mind arise from auto-intoxication. The note was of the following tenor: "Some of the results that have thus far been obtained are brilliant. Recovery has occurred in certain psychopathic cases in which a prognosis of incurability seemed inevitable."

Dr. Brugia did not, however, publish his results, as they proved contradictory. Messrs. Broca, Sapelier and Thiebault, at the meeting of the Academy of Medicine of Paris, December 26, 1899, stated new results favorable to the serotherapy of alcoholism.[1] He experimented with the serum of horses subjected to alcoholic intoxication. This serum has the property of producing a deep disgust for alcoholic beverages.

Mr. D'Abundo, at the Tenth Congress of the Phrenia-tric Society, held in Naples October, 1899, reported some experiments of serotherapy in progressive paralysis. The following is quoted from him: "The blood serum of excited paralytics, in one of the least advanced stages of the disease, proved sedative and restoring." There was a distinct history of syphilis in the patient. I have not yet drawn any conclusion from this, but if the result was not a mere chance I think it militates in defense of an infective-toxic origin of progressive paralysis. We may intuitively perceive that the specific toxicity, which the evolution of the disease in the individual has produced, displays some curative power in initial cases.[1]

Let us now speak of my serotherapeutic experiments in epilepsy, founded upon repeated injections of epileptic serum.

I made my first experiments upon animals and shall confine myself to stating the results. Many intraperitoneal injections of epileptic blood-serum, in increasing doses, were made before I succeeded in injecting with impunity, into cavities, doses of twice the strength of the original fatal dose. The animals that first presented a severe hypothermy and weakness in time not only suffered no ill effect from the treatment, but they increased steadily in weight. The way seemed to be opened for a therapeutic experiment in epilepsy. It seemed possible to benefit epileptics by lessening their cellular sensibility through a repeated and progressive contact with the presumed toxic epileptogenic substances. Two procedures were possible; one, the injecting of blood-serum of one epileptic into a second epileptic less ill than the first; the other, the re-injecting into an epileptic of the blood-serum drawn from him after bleeding.

These two methods, apparently so different, should give the same results. In both cases, admitting that the blood contains the toxic and soluble principles believed to produce the epileptic phenomena, there is artificially introduced into the organism a much greater quantity of these poisons than is usually found there.

My hypothesis may be made clearer by referring briefly to my explanation of the mechanism by which epileptic crises take place. As stated in a previous note on the pathogenesis of epilepsy, the crises are only brought about by a discharge of dynamic energy gathered in epileptogenic centers in consequence of an irritation which is lasting, constant and uniform for an indeterminate period of time. I drew this interpretation only from the evidence furnished by my researches, to the effect that the amount of poison circulating in epileptic blood does not change in the same individual in different stages of the disease. My hypothesis, which forms the basis of the present experimental researches, differs from the views held by most adherents of the autotoxic theory. According to these latter the intermittency of epileptic seizures depends upon an excessive periodical irritation of the nervous centers which is caused by a periodical production or by an accumulation of toxic principles, anomalous to the organism. With such an interpretation it would have been difficult to foresee the possibility of immunizing against the poisons circulating in the organism by periodical injections of the same poisons, even if made in progressive doses.

A brief exposition of some of the new therapeutic experiments that I have been making for more than two years past in our Institute, always with very encouraging results, is the object of the present communication. I shall first, however, briefly describe the technics used.

First, I must emphasize the necessity of scrupulously following the rules of asepsis and antisepsis in every step of the procedure, namely, in blood-letting, in the separation and preservation of the serum, and in the injections. The condition of the patient who is to furnish the blood must be ascertained, in order that the danger of transmitting disease be avoided. As to blood-letting, I use tubular needles of large bore fixed

[1] Scalia-Terapia delle Malattie Mentali, p. 227.

[1] Annali di Neurologia, Anno XVII., Fasc. 4.

on a glass pipette about 10 centimeters long. With this simple instrument and a recipient with a large opening (I use Erlenmeyer's bottles), we can draw aseptically as much blood as we like, without exposing it to the contact of air. The tubular needle is inserted into a venous trunk that has been compressed above. The free end of the pipette is introduced into the aforementioned receptacle. After having again disinfected the slight wound and washed it with alcohol and ether, it is closed with a drop of liquid taffetas. In this way a patient can be bled several times without suffering the least inconvenience. The quantity of blood withdrawn varies with the individual. The most I have taken at one time from strong persons is 250 to 300 cubic centimeters. Then I separate the serum and divide it in small bottles holding 10 cubic centimeters each, only adding some camphor. However, that the preservation may be surer, I have long used fractional sterilization. If this be done at low temperatures it has no influence on the beneficial properties of the serum.

Both in injecting serum from one epileptic into another and in reinjecting into the same patient I always follow the method of progressive doses, beginning with 3 to 5 cubic centimeters and increasing gradually up to 10 or 20 cubic centimeters in thirty or forty days. As will be seen from the histories of the different cases, this method is necessary from the fact that some patients react violently to the first injections even when made in small doses, and present the symptoms of an acute intoxication, which may even be dangerous. This is the crisis of adaptation and is quite transitory, disappearing after a few injections. Commonly several injections, continued for some weeks, are necessary before durable results are obtained.

My method of treatment is briefly as follows: During the first month I inject into the glutei, at intervals of a few days and in progressive doses, a total quantity of 40 or 50 cubic centimeters. During the following months, when I think the patient has overcome the first adjusting period, I carry the total dose up to 80, 90 or 100 cubic centimeters, especially when the patient begins to improve. In these cases I have continued the injections until I thought the maximum advantages had been obtained. This I inferred from the presence of a firm equilibrium in the general condition as shown by their no longer reacting, but being indifferent to the treatment.

I think, however, that an exact general rule for these injections cannot yet be given. It always depends upon the peculiar conditions of the individual into whom the injections are to be made. We shall see that these conditions may be such as to contra-indicate treatment altogether.

Ten epileptics have thus far been subjected to the injections. They have been under my observation during a period varying from one to two years. The final results, therefore, may be considered as of a scientific and practical value, upon which we may justly rely in our inferences and judgment. All the cases exhibited the severest form of idiopathic epilepsy, both as to the number and intensity of the motor crises, and as to the presence of psychic and sensorial phenomena.

Case I.—C. A., a marriageable, strongly-constituted young woman, twenty-two years of age, by trade a dressmaker. She has no hereditary precedents. About eight years ago she began to suffer from intense headaches and insomnia, and soon afterward from swoons (two or three a week) with unconsciousness. About this time serious gastric perturbations began also to be evident and the patient suffers continually from heaviness in the epigastrium, and is not seldom tormented with real gastralgias that last many hours and even days. Her tongue is dry and always covered with a whitish coating. She vomits and raises wind, particularly a few hours after her meals. The swoons have ceased for nearly four years, giving way to tonic and clonic convulsive spasms which grew more and more severe, particularly at the time of her menstrual periods. It is usually an abrupt, cryless spasm characterized particularly by the violence of the general muscular shocks that succeed the tonic period. It lasts from ten to fifteen minutes. Then the patient becomes unconscious for two hours or more. She soon grew disinclined, tiresome and very irascible. These last two years in which the spasms followed each other with extraordinary frequency (five to fifteen times in twenty-four hours), she has become disorderly, spiteful and often violent and aggressive.

Since the patient grew worse her menses have ceased; the gastric perturbations seem to get worse. Besides, one year ago a dry erythema on a deep-red ground appeared on the skin of the breast and abdomen and particularly of the internal parts of the thighs and of the anterior parts of the legs as far as the instep. This produces a constant and intense smarting especially during the night, so that the patient often cannot sleep.

For several years we gave her strong doses of bromide (8 to 10 grams a day) and 4 grams of chloral every night for the insomnia. We tried also to conquer the skin erythema by various internal and external remedies, but always in vain.

At present the patient always sits aside, distant from her companions, silent and down-cast. Her eye is grim and without expression; her face wrinkled, frowning and cyanotic. Her dilated pupils react very poorly to light. Her cutaneous and tendinous reflexes are rather weak, and standing upright with joined feet and closed eyes makes her giddy. A remarkable torpor is to be seen in her motor and psychomotor manifestations. On the first of August the patient weighed 63 kilograms. Her pulse was weak and slow. We experimented on this subject with the serum taken from the blood of an epileptic who was in a no less severe condition, and had been confined in our institution for many years. On the first days of August, 1899, we began to inject small doses of the said serum, but at the third injection of 5 cubic centimeters made at an interval of two days from the last, we suspended treatment as the patient became suddenly worse. The epileptic convulsions became more intense and the patient fell into a state of drowsiness and semi-unconsciousness. She looked more imbecile and cyanotic than ever; the sensibility had grown more obtuse; the reflexes were weaker and the pupils more rigid. She constantly dosed, and when awake she could hardly stand erect. She paid no attention to questions and presented a remarkable torpor in all psychic manifestations.

She remained in this condition for about five days from the last injection. Meanwhile she became sensibly worse. Toward the middle of the said month her weight had gone down to 61.800 kilograms. We let her alone until the beginning of September, when she had returned to about her original condition. Then we resumed the injections with the serum drawn from the same subject as before, and not only are they now borne, even in larger doses, without inconvenience, but they prove also very beneficial to the patient herself. By the end of September we had injected, with several intervals, a total quantity of 50 cubic centimeters of serum. The number of the convulsive spasms in this month decreased to less than half that of the preceding months. Besides, the fits are less severe, much shorter than previously, and quite deprived of muscular shocks.

Sometimes they are limited to a mere unconsciousness lasting a few seconds and being attended by a rapid tonic contraction of a limited group of the muscles of the body.

The muscles of the neck, now on the right side, now on the left, present particularly these contractions. The patient's general condition is also better; her appearance is livelier and more expressive; she appears no longer frowning and cyanotic, and her behavior is more orderly. She grows more docile and less irascible and begins to speak with her companions.

The sensibility and general reflexes may be considered normal, and the pupils react well to light. Her menses, however, have not appeared. Although the gastric disturbances and the skin erythema still persist, they are remarkably abated. The gastralgias have almost disappeared and the patient feels now, only transitorily, a sense of heaviness in the epigastrium, which formerly was almost continual. The tongue is no longer so foul and the eructations are rather fewer. The erythema has grown more and more limited, its characteristic aspect disappears little by little from the margin to the center, giving way to mere irregular spots of a reddish color. The intense smarting characterizing this cutaneous disease diminishes very much and the patient complains only of a local itching, especially at the points where the erythema is in process of recovery.

During the last fortnight of September the patient began to sleep during the night, so that toward the end of the month the chloral was discontinued. Her pulse became normal. Her weight is now 64.300 kilograms.

In October she received a total of 60 cubic centimeters of serum and by degrees she made remarkable improvement. During this month the spasms were reduced to six, three of which were only rapid giddinesses without complete unconsciousness.

She is now a healthy-looking, mild, orderly girl and she seeks elegance in her dress. She embroiders during the day, likes to converse with her companions and sleeps well at night. She complains of but slight gastric disturbances, which are limited to some eructations, occurring on the days of the epileptic crises. All sensation of heaviness in the epigastrium has disappeared and the tongue is always clean and rosy. The cutaneous erythema may be said to have disappeared and in its place only irregular rosy spots remain. The menses appeared this month for the first time in a year and they present a regular course. The patient weighs 65.200 kilograms.

November: In three doses a total of 70 cubic centimeters of serum are injected and the dose of bromide is reduced to 4 grams a day. During the entire month only four epileptic seizures occurred, and even these almost always during the twenty-four hours preceding the appearance of the menses. The gastric disturbances have disappeared and no trace of the erythema remains. The skin has grown everywhere soft, normal, clear and fresh. Weight 66.500 kilograms.

December: During this month only one injection of 20 cubic centimeters of serum was made and the patient continued well without any incident until the 15th. In the evening of that day two new convulsive fits and a giddiness took place. These were the result of the total suspension of the bromide treatment ordered on the preceding day. The patient soon became as well as at first, but the bromide treatment was continued on the following day in doses of 3 grams a day. Her menses are regular, even after a few epileptic crises. During this month the total number of convulsions and attacks of giddiness was seven. She weighs 66.800 kilograms.

January, 1900: Two injections of 20 cubic centimeters each were made. The condition of the patient remains unchanged. During this month only four fits occurred, and these before the menses appeared. Her weight has increased to 67.500 kilograms.

February: The injections are suspended and the patient continues well with a very small number of fits. Her weight is 66.500 kilograms.

March: The suspensions of the serum injections is continued, but the condition of the patient and the number of the fits are almost the same as during the preceding months. Her weight is 66.200 kilograms.

In the beginning of April, insistently urged by her family, she was dismissed from the institution.

Diary of the Seizures.

	Convulsions.	Vertigoes.	Weight in Kilograms.
June, 1899	111	—	63.200
July, 1899	97	—	63.000
August, 1899	109	—	61.800
September, 1899	24	7	64.300
October, 1899	3	3	65.200
November, 1899	4	—	66.500
December, 1899	3	4	66.800
January, 1900	3	1	67.500
February, 1900	4	2	66.500
March, 1900	3	4	66.200

According to information received from the physician of the patient's family, in May, 1900, the fits increased again, but only transitorily, for they diminished again during the following month. Toward the end of 1900, that is, about one year after the treatment, the motor crises increased again in number and severity. The average monthly rate of these crises, however, never reached a third of the number the patient presented before she underwent the serotherapy. Her physical and mental condition always remained good and allowed her to take care of her house, whilst formerly they not only hindered her from it, but had often caused her to be confined in our institution.

Case II.—R. Paul, twenty-two years of age, is a young man of strong constitution, sober, rather defective in intelligence and of a shrinking, timid nature. Serious hereditary antecedents are found in his paternal line. He began four years ago to be subject to giddiness, of an epileptic character, with unconsciousness. These attacks of vertigo, that commonly last a few minutes, were rare at first (one or two weekly); but they grew more and more frequent, so that they appeared during the past two years from three to five times a day.

Two years ago the first complete epileptic fit appeared, and subsequently the fits have reappeared at intervals of from twenty to thirty days. Yet for the past year, during these long inter-paroxysmal periods, the attacks of giddiness have been more frequent than formerly, occurring from five to ten times a day. These attacks, moreover, are attended with hallucinations. The psychic phenomena are quite transitory and last only a few minutes. At their subsidence the patient quickly becomes normal. During the past few months, in which there has also been an increase of the convulsive fits, the patient has had periods of unusual restlessness, with a slight torpor of the intellectual powers. These periods last from a few hours to whole days. The patient now suffers from want of sleep and complains constantly of a sense of heaviness in the head. His nutrition has deteriorated and he has grown depressed, irascible and sullen. No disturbance of sensibility or motility. General reflexes normal. For the past year the patient has been taking

bromide in large doses. Toward the end of August 1899, he weighed 68.300 kilograms.

In the first days of September, 1899, the patient undergoes a regular treatment of injections with the blood-serum drawn from another patient suffering from a more severe type of epilepsy. In this month a total of 40 cubic centimeters of serum are injected in small doses. During the first fortnight of the treatment the patient appeared to get rather worse and lost about 2 kilograms in weight. The convulsive fits are more numerous, so that they appear almost every day and the sense of heaviness in the head has now become a strong and almost constant cephalalgia. The patient is more restless and depressed than ever, and often refuses to eat. In the second half of the month this state of things disappears by degrees. The patient gets back into the condition of the preceding months and even shows signs of improvement. His weight has increased to 67.600 kilograms.

October: In this month a total of 60 cubic centimeters of serum is injected and at the beginning of the month the bromide treatment is entirely suspended. The patient soon passes into a state of unusual well-being. He sleeps quietly all night. The cephalalgia and the sense of heaviness in the head, as well as the hallucinations, disappeared. In the whole month there are but one convulsive fit and three attacks of giddiness. The patient weighs 71.300 kilograms.

November: The patient receives 55 cubic centimeters of serum and is perfectly well until the 27th. On that day two fits occur with short interval. On the following day he suffers from an attack of giddiness and then resumes his normal condition. The weight is 72 kilograms.

December: In this month 30 cubic centimeters are injected and the condition of the patient remains almost as it was in the preceding month. The period of complete pause without psychic or motor epileptic phenomena lasts throughout the month, to the great wonder and joy of the patient. He looks more florid than usual; his physiognomy is lively and he is good-humored, gay and of a mild, good temper. His weight has reached 73.200 kilograms.

January, 1900: The serum injections are suspended this month and the bromide treatment continues also to be suspended. The condition of the patient remains almost unvaried; but the fits reappeared after an interval of 50 days. He had a series of four attacks of giddiness and a convulsive fit in a few hours, which caused him to be dejected and sad for two days. His weight goes down to 71.600 kilograms.

February: Both the serum injections and the bromide treatment are still interrupted. The patient continues well without any disturbance until the end of the month, namely, for 40 consecutive days. He then has a series of three convulsions. This new crisis is followed by a short period of depression. His weight goes down to 69.600 kilograms.

March: Injections are resumed and in this month 45 cubic centimeters of serum are injected. The patient rapidly improves and continues well until the end of the month. Then a new series of three convulsive fits appear from which he makes a rapid recovery. The weight increases to 73.400 kilograms.

April: In the first half of the month two serum injections of 15 cubic centimeters each are made. His general condition remains unaltered, and toward the end of the month he is dismissed at the imperative request of his family. At the time of his dismissal the patient weighed 74.500 kilograms; that is, his weight had increased 6.200 kilograms since the day the injections were begun.

Diary of the Seizuures.

	Convulsions.	Vertigoes.	Weight in Kilograms.
July, 1899.....	12	47	67.900
August, 1899.....	10	52	68.300
September, 1899...	14	36	67.600
October, 1899.....	1	3	71.300
November, 1899...	2	1	72.000
December, 1899....	—	—	73.200
January, 1900.....	1	3	71.600
February, 1900....	3	—	69.600
March, 1900.....	3	—	73.400
April, 1900.....	2	1	74.500

According to the reports received from the family, the patient's condition, in the following months of April, May, June and July, remained unchanged from what it was when he was discharged. In the month of August, that is, about one year after the treatment, the epileptic crises began to increase, especially in the form of vertigoes. At the same time the weight decreased, being since that time about 70 kilograms. The physical phenomena, however, that formerly had necessitated the segregation of this epileptic from society, have not yet reappeared, although the bromide which he took in large doses before the treatment has not been resumed.

Case III.—C. Alfred, a countryman, thirty-two years old, unmarried. His mother and father suffered from pellagra with severe nervous phenomena. The patient has always been strong, taciturn and of limited intelligence. From boyhood he suffered from epilepsy, and when about twenty he began to be taken with caphalalgia and insomnia and became stubborn. Then he grew very disorderly and restless, and the epileptic fits having rapidly increased in number, he soon entered into a state of great psychical confusion with periods of psychomotor unrest, interrupted by hallucinatory disturbances.

During the seven years he remained in our institution, although high doses of bromide were daily administered, he grew progressively worse; the epileptic fits became more frequent and of late years they have occurred with an average of thirty to forty a month. Severe psychic disturbances with periods of great agitation, lasting a few hours or even days, became frequent. The state of mental confusion is constant, and pronounced loss of memory is marked. The convulsive fit is severe and is preceded by a cry.

The general sensibility is obtuse; the cutaneous and tendon reflexes are weak. The pupils are equal, commonly dilated and react feebly to light. Standing upright with joined feet and closed eyes causes giddiness. The patient in his general movements presents a remarkable torpor. The weight at the end of October, 1899, is 75.800 kilograms.

With this patient we try the action of the blood-serum he himself has furnished, after having been bled. In the first days of the month of November the injections are begun. Made in high doses of 10 cubic centimeters, they are soon increased to 20 cubic centimeters. The patient presents no disturbance at all. Thus in his first month of treatment a total quantity of 80 cubic centimeters of serum is injected.

Toward the end of the month he appears to be getting better. The epileptic phenomena, both motor and psychic, have limited themselves in number and intensity. The convulsive fit that commonly lasted about a quarter of an hour now lasts but from two to four minutes. The psychic equivalents which were almost daily in the preceding months appear but three times this month. They take the form of a brief agitation.

Still the great psychic and motor torpor persists, and the patient always presents Romberg's phenomenon. No considerable modification appears in sensibility or in the general reflexes. The general aspect of the patient seems to be rather better and his weight increases to 77.300 kilograms.

December, 1899: In this month 90 cubic centimeters of his serum are injected. Improvement is rapid. The epileptic motor crises are reduced to three during the month. They appear after twenty-eight days of complete pause, and twice the fit is not followed by the muscular shocks. The hallucinations and the psychic equivalents have disappeared, and the patient presents now a remarkable rousing from the state of general torpor and mental confusion, in which he has been for several years. His physiognomy has a livelier expression; he pays attention to questions and to what happens around him; he can give correct answers and recollects some occurrences of the last few weeks. He is quiet and helps willingly with the simple work of the ward. His countenance is florid with a bright skin and a healthy color, and he is more active in his movements. Romberg's phenomenon has disappeared; the sensibility is less obtuse; the reflexes have now become rather exaggerated and the pupils react promptly to light. He now weighs 81.600 kilograms, an increase of more than 6 kilograms in two months.

January, 1900: The total quantity of serum injected is 110 cubic centimeters. The general condition continues better, although in this month there is a slight increase of the epileptic crises. There is only one complete epileptic fit, but there are eight very slight fits. These latter are limited to a mere swooning or to a rapid increase of muscular tonicity. No psychic or psychosensorial disturbance; nay, we may say that the state of torpor in the psychic and motor activities, so long characteristic in the patient, has almost entirely disappeared. Even the affective sentiments are aroused, and more particularly the religious ones. The patient weighs 82.500 kilograms.

February: The serum injections are suspended. Both the physical and the psychical conditions of the patient remain about the same. The number of epileptic crises is almost the same as in the preceding month, but with the difference that they are more intense. Indeed, the complete fits with muscular shocks in this month amount to three. The weight is 82.100 kilograms.

March: The serum injections are still suspended. The favorable condition of nutrition is unvaried. The patient weighs 82 kilograms.

April: In this month two injections of 20 cubic centimeters each are made. No remarkable variation is observed in the psychic state of the patient. The epileptic attacks present no modification either in number or intensity. The weight again undergoes a slight increase, reaching 82.500 kilograms.

May and June: There is no change in the patient's condition, although the injections have been again interrupted during all this period.

During continued suspension of the treatment, the general condition of the patient began to grow worse. This phase lasted four months, that is, until the end of November. During this time the convulsions occurred nine times a month. The weight decreased to 79 kilograms.

In November, 1900, the patient had a second and progressive relapse. The fits increased by about one a month, so that in May, 1901, he had 17 of them. The nutritive state of the patient also grew worse, so that the last monthly average was 77.500 kilograms.

In this period of progressive failure the psychosensorial phenomena also appeared again, but were less frequent than formerly. Therefore, we may say that the patient, more than one year after the suspension of the injections, had not descended so low as he was before the beginning of treatment. This also appears from the number of the crises and from the weight of the body as shown in the diary.

Diary of the Seizures.

	Convulsions.	Vertigoes.	Weight in Kilograms.
August, 1899.....	32	12	75.500
September, 1899...	21	9	74.800
October, 1899.....	37	18	75.800
November, 1899...	19	3	77.300
December, 1899...	3	—	81.600
January, 1900.....	1	8	82.500
February, 1900....	3	5	82.100
March, 1900.....	2	7	82.000
April, 1900.....	4	3	82.500
May, 1900.....	5	1	83.200
June, 1900.....	4	2	81.700
July, 1900.....	9	1	79.800
August, 1900.....	9	—	80.200
September, 1900...	9	1	79.400
October, 1900.....	9	2	78.000
November, 1900...	11	4	77.000
December, 1900...	13	3	76.800
January, 1901.....	12	2	77.500
February, 1901....	16	2	77.800
March, 1901.....	16	4	77.500
April, 1901.....	16	3	77.700
May, 1901.....	14	1	77.500

Case IV.—Alfred V., a workman, thirty-two years of age, unmarried, of a strong constitution and without hereditary precedents. When fourteen years old, in sequence to a fright, he had the first epileptic fit. Then the fits began to appear at very short intervals so that they soon occurred two or three times in twenty-four hours. They were chiefly nocturnal. In the last three years, however, the fits increased in intensity. They showed a cumulative tendency, coming three or four times a day with three to five days' interval. The attack is sudden, violent and without cry.

The patient becomes pale, falls, and after a tonic period of two or three minutes presents general and intense muscular shocks which last about eight minutes. After these crises the patient enters into a state of deep mental confusion, which may last several hours. Then he suffers from a severe cephalalgia which generally continues for all the following day. For some years past he has suffered from insomnia, and lately he has become physically weak. His weight, verified at the end of October, 1899, is 70 kilograms. The patient is of a quiet, good disposition and fairly intelligent. In the intermission, when he has overcome the confusion and cephalalgia consequent upon the fits, his general condition is that of a healthy man. There is nothing worthy of mention regarding sensibility or general reflexes. For the past year he has taken 4 grams of bromide every day.

November, 1899: The treatment by injections is begun. In this case, also, we used the blood-serum of the patient, previously taken from his own veins. In the first month a total of 60 cubic centimeters of the serum was injected. The patient tolerates these injections without any disturbance. His general condition remains unchanged for the first twenty days. In the last ten days of the month we note some amelioration in the epileptic phenomena. The fits during these days do not follow each other in series as before, but are isolated, coming at periods of five days. Moreover, the attacks become shorter and less intense, lasting two or

three minutes. After these last fits the patient returns directly to his normal condition without suffering from the confusion and headache that for so long troubled him. He now seems also physically better and weighs 72.600 kilograms. He continues to sleep poorly.

December: The total quantity of serum injected is 70 cubic centimeters and there are no attacks. The patient feels a sense of easiness quite unusual. He now sleeps quietly at night and passes the day in reading. His general appearance has become much better; his color is healthy, his expression bright and he weighs 75.800 kilograms.

January, 1900: The total quantity of serum injected in this month is 60 cubic centimeters, and the daily dose of bromide is now brought down from 4 grams to 2 grams. The patient continues in general good health. Two fits occur in this month, but they are short and much less severe than was the first one, consisting only of a short period of unconsciousness with an increased degree of muscular tonicity. The weight remains 75.700 kilograms.

February: The total quantity of serum injected is 70 cubic centimeters. The fits are more frequent, coming at intervals of 8 or 10 days, but they are always isolated and much less intense than before. The muscular fits are but two in all the month. There is no psychic disturbance and the weight is 75.300 kilograms.

March and April: In these two months the serum injections are suspended and the patient continues in those conditions of amelioration he has reached through the treatment. The fits are always isolated as in the preceding months; some of them are still accompanied by muscular shocks, but the greater number are mere swoons. The weight of the patient during the month of March was 75 and in April 74.500 kilograms.

May: Twenty cubic centimeters of serum are injected. The general condition of the patient continues good. In all the month there are but two convulsive fits and one giddiness. The weight goes up to 76.300 kilograms.

June: The serum-injections are definitely suspended. The general state of the patient remains the same. The fits are infrequent. The weight is 76 kilograms.

From that time on, to May, 1901, the general condition of the patient remained in a state of stable equilibrium during which the motor crises come only with an average rate of twice or three times a month, and no longer caused the severe phenomena which were constant before treatment was begun.

The nutritional state of the patient is excellent. The weight, although the injections have been suspended for more than a year, is constantly, by some kilograms, greater than before the treatment.

Diary of the Seizures.

	Convulsions.	Vertigoes.	Weight in Kilograms.
August, 1899	24	—	69.500
September, 1899	27	—	70.100
October, 1899	19	—	70.000
November, 1899	5	2	72.600
December, 1899	—	—	75.800
January, 1900	—	2	75.700
February, 1900	2	4	75.300
March, 1900	3	5	75.000
April, 1900	4	3	74.500
May, 1900	2	1	76.300
June, 1900	3	—	76.000
July, 1900	2	2	75.600
August, 1900	2	1	75.000
September, 1900	3	—	74.200
October, 1900	1	—	75.500
November, 1900	4	2	74.000
December, 1900	1	—	75.300
January, 1901	4	3	73.500
February, 1901	2	—	74.900
March, 1901	3	1	73.100
April, 1901	3	—	73.500
May, 1901	2	1	74.000

Case V.—R. Pius, an unmarried man, fifty-two years old, of strong constitution. The first epileptic symptoms appeared twenty years ago, following a fright. The patient soon began to have convulsive fits, occurring first with an interval of from five to six months, but which rapidly became more frequent, until they occurred every two or three days. For the past two years the fits are very frequent and are repeated two, three and even four times in the same day. They have a cumulative tendency. After these series of fits, periods of pause of two or three days follow. The convulsive fit is sudden and is preceded by a loud cry. The tonic state is usualy short, whilst the clonic state, which is always general, lasts about ten or fifteen minutes. The violent muscular shocks are followed by coma, which lasts about half an hour. When this disappears the patient goes into a state of deep general torpor that may last several hours. During this last stage he mutters to himself and has hallucinations of sight and hearing.

The intelligence has shown a remarkable and progressive decay, and at present both the psychic and motor phenomena are so defective that the patient cannot care for himself. The patient is completely unconscious of place and time; he remembers nothing, not even his own name; his face is cyanotic and his countenance stupid; he can hardly stand upright; he presents the Romberg symptom even when the eyes are open; and he walks so uncertainly and totteringly that he often has to be supported. During the past few months he passes the days sitting and the sleepless nights grumbling. He often voids urine and feces involuntarily. At present his sensibility is very obtuse; the cutaneous and tendinous reflexes are remarkably weak; the pupils are unequal and react to light very slowly; the tongue is always thickly coated. He has frequent eructations, and his breath has a penetrating acetone odor. He is getting progressively worse. Eight grams was the daily dose of potassium bromide administered during the two years he had been in the institution.

The method chosen for this patient was the re-injection of his own serum. In the beginning of February, 1900, 300 cubic centimeters of his blood were withdrawn, and on the 15th of the same month we began the treatment by injection. From this day until the end of March we injected a total quantity of 80 cubic centimeters of the said serum.

In the first half of March we noted general psychic and physical amelioration, which in the following days became sufficiently remarkable to attract the attention of the persons employed in the institution.

The fits are lessened in intensity and in number. Sometimes they are now limited to the cry and to a slight increase of muscular tonicity, without any shock. The complete fits, that alternate with the above said modification, in the month of March are reduced to about half the number of the preceding months. The patient presents at the same time a remarkable improvement in his psychical condition; his physiognomy grows livelier and more expressive; and the hallucinations after the fits, formerly so frequent, have disappeared. The patient now pays attention to questions and begins to interest himself in what happens around him. It is wonderful to see the progressive awakening

of his consciousness. He knows the place where he lives; he begins to have some idea, though confused, of his condition and can recollect well enough some facts that happened before he entered the asylum. He does not remember at all what has happened in the two years since he entered the institution, but he recollects well enough the occurrences of the month of March, the time of the first injections. He has become careful in his dress and for a month he has not been filthy. The general sensibility is less obtuse than before, and is almost normal. The cutaneous reflexes are still weak, while the tendon reflexes have now become more active. The pupils, which once were unequal and reacted feebly to light, now are equal and react well. The Romberg symptom is no longer present and the gait is normal. Physically, also, he is much better. The skin of the face is no longer cyanotic and wrinkled, but florid and bright; the tongue no longer whitish and foul, but clean and rosy; the breath no longer bad, and the eructations much lessened. He now sleeps quietly the whole night. His weight is 71.600 kilograms, that is, a gain of 6 kilograms in forty-five days.

April: In this month 60 cubic centimeters of serum are injected. The bromide is reduced from 10 grams a day to 2 grams. The epileptic crises are now much less numerous, and the general improvement, though slow, is always progressive. The patient now looks like a healthy man. He is conscious of his condition and appears good-humored and good-tempered. He likes to jest with his companions. He can form judgments fairly well, and the activity of his ideas, though limited, is ready. Although his conversation is defective in some respects, it is in general remarkably coherent. His sentiments of affection are also more in evidence. He interests himself about his family; he wishes to see them and often expresses the wish to be dismissed. His weight is 73.700 kilograms.

May: The serum injections are suspended, but the treatment of 2 grams of bromide every day is continued. As is seen from the diary, the epileptic crises present an inconsiderable increase in number, but their intensity is notably increased. After two severe convulsive fits, following each other at an interval of about two hours, the patient enters again into a state of great mental confusion and exhibits at the same time hallucinatory phenomena. Although he gets worse, he is not in as bad a condition as he was before he underwent the injections. The relapse is transitory and disappears after a period of about three days.

June: Injections are begun again and during the month 32 cubic centimeters of serum are injected. The general condition of the patient quickly improves. His weight reaches 75.500 kilograms. However, the fits are a little more numerous, though not very intense.

July: In this month the serum injections are suspended again and now quite definitely. However, the general condition of the patient continues to improve so that in the following September his weight attains an average of 77.600 kilograms, an increase of about 13 kilograms. During this period the convulsions recur on an average of four or five times a month. The hallucinatory phenomena with severe mental confusion that first reappeared in May come again, but only for one day.

October: In this month, and especially in the ensuing November and December, a slight relapse occurs. The motor crises increase to six a month. The weight decreases first to 75, then to 73 and then to 72.400 kilograms. The hallucinatory crises are present three times in these months, but they are always transitory and short.

From January, 1901, to May, 1901, the general state of the patient is practically unvaried. The fits always occur about six times a month, and the weight stays about 72.500 kilograms. The mental state remains fair. The psychosensorial crises grow a little more numerous in comparison with the preceding months.

	Diary of the Convulsions.	Weight in Kilograms.
December, 1899	28	65.200
January, 1900	34	64.800
February, 1900	26	65.000
March, 1900	6	71.600
April, 1900	2	73.700
May, 1900	4	73.400
June, 1900	4	75.500
July, 1900	5	75.700
August, 1900	5	76.900
September, 1900	4	77.600
October, 1900	5	75.100
November, 1900	6	73.000
December, 1900	6	72.400
January, 1901	7	72.300
February, 1901	6	72.300
March, 1901	6	72.500
April, 1901	5	72.600
May, 1901	5	72.900

Case VI.—G. Armida, a young girl, twelve years of age, without hereditary disease. The patient was well until ten years of age. She had had a normal physical and psychic development and had shown no sign of anomalies in character. Then, without any determined cause, she suddenly began to have epileptic convulsions which were very intense from the beginning. These became more frequent, so that during the past year they came fifty or more times a month. The fits are usually isolated and are both nocturnal and diurnal. Sometimes they come in series of three or four. They last about ten minutes, are attended with involuntary discharge of urine, and are followed by intense headache, lasting several hours.

Since the appearance of these crises the patient has greatly changed. She has grown very restless, disorderly and disobedient, becoming almost intolerable by reason of her spiteful and irascible temper. She has impulsive tendencies and a mania to steal. Her intelligence is very limited. Although she was for a time in the first class of the elementary school when seven or eight years of age, she does not even know the alphabet. Her sentiments of affection are very rudimentary. She does not pay attention to questions and she cares little for reproofs. She often utters silly and senseless words and laughs easily in an immoderate and foolish manner. She is very restless, always dancing and jumping, and trying to rush upon her neighbors to tear their hair and dresses. There are no paralytic disturbances. The sensibility to pain is rather diminished. The pupils are equal and react well to light. The tendon reflexes are exaggerated. The pulse is very slow. At the end of February, 1900, she weighs 34.600 kilograms.

In the beginning of March the patient receives injections of the blood-serum drawn from another less severely affected epileptic. During the month a total of 40 cubic centimeters is injected. Soon after the first injections a progressive amelioration is to be seen in her general condition. In the first fortnight the weight increases more than 3 kilograms and at the end of the month reaches 42.300 kilograms. There is also a remarkable change in character and tendencies; she grows by degrees less stubborn and irascible, and more orderly and obedient. The convulsive attacks are also greatly reduced in number and intensity. In the whole month the crises are reduced to nine, some of which are mere "absences." The nocturnal convulsions were the first to disappear.

In April 60 cubic centimeters of serum are injected. The patient continues to get progressively better. The facial expression has improved, in that stupidity is being replaced by intelligence. The impulsive tendencies have disappeared and she has grown very orderly, good and even-tempered. She is obedient and willing to work. The intellectual powers also present considerable amelioration. The patient answers reasonably to questions, remembers the time when she was tormented by numerous fits and wants to be sent back to her parents. The general reflexes and sensibility are normal, the pulse is regular. The weight has increased to 48.300 kilograms; an increase of about 14 kilograms. No epileptic crises this month.

May: A total of 45 cubic centimeters of serum is injected. The patient has no epileptic crises. She is always good, gentle and obliging. The weight has now reached 49.200 kilograms.

June: A total injection of 30 cubic centimeters of serum. There is no epileptic crisis and the good condition of the patient remains unvaried. Whereas, for a long time the girl has been taking a daily dose of 6 grams of bromide, by a slow and progressive diminution of the dose, the drug is now completely suspended. The weight is 50.100 kilograms, that is, an increase of 16 kilograms in five months. On the 15th of this month her menses appear for the first time. They are abundant and last for three days.

July: The serum injections are entirely suspended. The girl continues in excellent general health. Her menses come in this month again and from this time they continue regularly. She has no epileptic phenomena. The girl has undergone complete transformation in physiognomy and character; she looks like a normal, intelligent person; she grows better, milder and more active. In this month she begins to go to the institution school, where she soon distinguishes herself by her diligence and progress. In a short time she learns to read and write. She behaves well to every one. In dress she is modest, but rather elegant.

From January, 1901, until the present writing the weight of the girl remains almost unvaried, but in other ways she is constantly improving.

March: She is no longer to be regarded as the brutish creature she was before the treatment. She is a fine, healthy girl, with correct manners. She dresses carefully and with elegance. She is thirteen, but appears to be at least sixteen.

Toward the end of May she is released from the institution and returns to her family, where she employs herself with domestic duties, helping her parents as a healthy person.

	Diary of the Convulsions.	Weight in Kilograms.
January, 1900	58	35.100
February, 1900	62	34.600
March, 1900	9	42.300
April, 1900	—	48.300
May, 1900	—	49.200
June, 1900	—	50.100
July, 1900	—	51.300
August, 1900	—	54.400
September, 1900	—	55.200
October, 1900	—	57.500
November, 1900	—	58.700
December, 1900	—	60.200
January, 1901	—	60.300
February, 1901	—	60.250
March, 1901	—	59.600
April, 1901	—	59.500
May, 1901	—	59.700

Case VII.—Charles M., forty-five years old, a bookkeeper, has been in our hospital sixteen years. His mother was hysterical and his father died of progressive paralysis. Since early childhood the patient presented epileptic symptoms under the form of a sudden waking in the night with loud cries and passage of urine. From infancy he was eccentric, irascible and obstinate. Soon intense convulsive fits began to appear, at first only by night, then by day. They were limited to four or five a month. The epileptic crises grew more frequent, taking the form of vertigoes, always with loud warning cries.

When twenty-five years old he married and soon afterward severe psychic and psychosensorial disturbances appeared in the form of maniacal excitement with hallucinations of sight and hearing. Commitment to this institution was soon necessary. In the first years the disease had several periods of intermission. He was frequently committed here and then released. In 1885 he entered definitely, for the severe psychic disturbances had assumed a lasting character and his intellectual powers had grown much weaker.

Although the bromide treatment was continual and in high doses, he became progressively worse. For ten years the epileptic crises, in the form of convulsive fits and vertigoes, were repeated with remarkable frequency, occurring from three to five times in the twenty-four hours. In the past three years, however, these crises have notably lessened in number, and recently they have been reduced to four or five a week, the giddinesses being in the majority. The patient has usually one, two or even more periods of excitement each month, which last two or three days. During this time he is confused, disorderly, very irritable, and sometimes violent. The patient is becoming demented, as is shown by his difficulty of expression, his lack of perception, his deficiency of association, his absolute want of affective sentiments and by his failure of memory. The pupils are equal, but scarcely react to light. The cutaneous and tendon reflexes are diminished. Standing upright, even with open eyes, makes him dizzy. The sensibility in general is obtuse, but there is nothing remarkable in the special senses. The general nutrition is always fairly good. The weight is about 75 kilograms.

In January, 1900, the patient was bled abundantly, for the auto-serotherapy was to be tried in this case.

In February 60 cubic centimeters of the serum are injected at different times. The bromide treatment, on account of the extraordinary severity of the case, was continued. The patient does not react acutely, but gets slowly and progressively worse. He is moodier than ever, and in the second half of the month he grows still more fretful and confused. He suffers from continual anorexia and has persecutory ideas. The convulsive fits and the vertigoes are increased in number and the weight diminishes about 2 kilograms.

March: In this month only 50 cubic centimeters are reinjected. The patient grows worse and worse. The epileptic crises have again become more numerous and the patient has two attacks of mental confusion and irritability, during which he is very disorderly and impulsive. These two attacks last three days each. In the intervals the general reflexes, which in the preceding months had diminished, augment. The weight goes down to 71.500 kilograms.

April: Auto-serotherapy is abandoned.

On the 15th of May the injections are resumed, but now with the blood-serum drawn from another epileptic. During the time when no injections at all were given, the patient seemed somewhat improved. No psychic phenomenon worth mentioning appeared in the forty-five days.

On the 15th of June, after total injections of 35 cubic centimeters of serum, we suspend this new treatment also, as it, too, was unsuccessful. The patient grew worse; he suffered from obstinate headache and from mental confusion stronger than ever, attended with excitement. Even the motor crises and the attacks of vertigo took place more frequently, and the general nutritive conditions were worse again. The weight at the end of June was about 68.800 kilograms.

In spite of the definitive suspension of the injections the patient, instead of recovering his habitual state, falls in the following months, *i.e.*, from July until the end of November, into a state of constant mental confusion with serious psychic phenomena, and an increase of the motor crises, which in this period come about fifty times a month.

In December and January, 1901, the patient began, little by little, to get better. The motor crises and the vertigoes lessened every month. His physical improvement was steady, and the psychic phenomena, especially the great mental confusion, grew less intense. At the end of one year and a half, then, he was in the same condition as he was before he underwent the injections.

DIARY OF THE SEIZURES.

	Convulsions.	Vertigoes.	Weight in Kilograms.
December, 1899...	6	9	74.700
January, 1900.....	6	9	75.000
February, 1900....	9	19	73.000
March, 1900.....	8	21	71.500
April, 1900.....	12	20	72.800
May, 1900.....	10	12	70.300
June, 1900.....	18	22	68.800
July, 1900.....	22	34	67.300
August, 1900.....	28	47	67.000
September, 1900...	27	41	66.500
October, 1900.....	35	59	66.400
November, 1900...	34	68	67.000
December, 1900...	22	45	67.800
January, 1901.....	20	38	68.300
February, 1901....	19	40	69.000
March, 1901.....	16	30	70.200
April, 1901.....	12	24	70.000
May, 1901.....	10	29	70.200

Case VIII.—Albertina Bus, twelve years old, of a delicate physical constitution. Her mother's parents are neuropathic. The girl seems to have reached the age of nine years in normal physical condition, and without suffering from any disease. Being very quick and intelligent she went early to school, where for her talents and good character she often won the praise of her teachers.

Three years ago the girl had typhoid fever. On recovering she had for a few days abundant and frequent epistaxis. She then developed convulsive fits of an epileptic character, which from the first were both intense and long. The fits came either suddenly or with a little warning cry. She always lost consciousness, and was dull and confused for some hours afterward, and often the attack was followed by a severe cephalalgia, which lasted the greater part of the day. During the fit she frequently voided urine involuntarily.

For some months the fits occurred once or twice a week, but then they became exceedingly numerous, so that in the past fifteen months they occurred from five to seven times or more in the twenty-four hours. They were always intense and complete, with violent muscular shocks. They came more frequently by day than by night.

Contemporaneously with the appearance of the convulsions, a remarkable change was noted in the psychic state, and especially in the girl's character. She grew restless, quick-tempered and often revengeful. She had insomnia and anorexia and suffered from intense cephalalgia; therefore she soon exhibited a great and progressive deterioration. The bromide and tonic treatment that was regularly kept up for more than two years was ineffectual, both as to her general health and as to the number of the epileptic crises.

The girl entered this institution in May, 1900. She was very thin and dejected; she weighed 24.300 kilograms. The pupils reacted normally and the tendon reflexes were exaggerated.

On the first of July, 1900, the bromide treatment was entirely interrupted and the little patient underwent the treatment by injection, the blood-serum being obtained from a confirmed adult epileptic. The injections were made gradually, the first dose being 3 cubic centimeters. From the first the girl tolerated the injections well. At the end of the month, by increasing rapidly the dose, we had injected 65 cubic centimeters of serum.

At first the patient suffered from slight depression associated with some loss of weight, but afterward, especially in the second half of the month, she got remarkably better, both as to nutrition and as to the epileptic symptoms. The progress of the case was soon evident. The convulsions grew less intense and less numerous, so that on the 21st of the month they appeared for the last time. Meanwhile the insomnia, cephalalgia, fatigue and general depression from which the girl had suffered so long disappeared by degrees. Her appetite increased rapidly and at the end of the month she had gained 3 kilograms. Her facial expression was better and she became very good-tempered.

August: In this month 36 cubic centimeters of serum are injected in three doses. No phenomenon of any kind appears and the girl improves wonderfully. She is intelligent and good, and applies herself during the day in reading and embroidering. She often writes letters full of love to her parents, informing them of her progressive improvement. The weight increases to 31.500 kilograms.

September: The serum injections are definitely abandoned. Nevertheless the girl continues to improve and presents no longer any symptom of her former disease. The color of her skin has become rosy and she is well mannered and kind. The weight has now risen to 34 kilograms, that is, an increase of about 10 kilograms, in a period of three months.

In the month of October, her parents insisting upon it, the girl returned to her family. Her weight at the time of her release was 34.400 kilograms.

	Diary of the Convulsions	Weight in Kilograms.
May, 1900.....	124	24.300
June, 1900.....	132	24.300
July, 1900.....	16	27.800
August, 1900.....	—	31.500
September, 1900.....	—	34.000
October, 1900.....	—	34.400

At home the girl remained in the best physical condition and without any epileptic phenomenon for more than two months, that is, until January, 1901. Then, according to information obtained from the doctor of her family, she was taken with chronic bronchial catarrh, which caused emaciation and anemia. A few convulsions appeared after this, but they ceased in the following month, after gradual recovery from the bronchitis.

[To be continued.]

ORIGINAL ARTICLES.

ONE WAY TO FIGHT CONTAGION.

BY CHARLES V. CHAPIN, M.D.,
OF PROVIDENCE, R. I.

An editorial in the Medical News not long since referred to the discouraging experience of a city which, after adopting new and stringent measures for combating communicable diseases, found that the diseases the control of which was attempted had increased rather than diminished. I suspect that this experience is not unique. We used to hear a great deal of hopeful prophecy about stamping out scarlet fever and diphtheria, but we still have them with us, though it is true they are not so common as in former years.

A study of the statistics of communicable disease in our cities indicates only a moderate success for our present methods of notification, isolation and disinfection. The history of Boston, for instance, is a discouraging one. Boston has more ample hospital facilities for caring for scarlet fever and diphtheria cases than any other large city. Its physicians are not surpassed by any as regards intelligence, education and public spirit. The proportion of cases reported is very large. Regulations in regard to isolation are stringent and unusually well enforced, yet the number of cases of scarlet fever and diphtheria is not perceptibly less than in other cities. In England, where many more than half the cases of scarlet fever and diphtheria in the large cities are removed to hospitals, these diseases prevail almost as extensively as in the United States. It is doubtless true that the increasing practice of isolation in these diseases has had its influence in their diminution, but the progress made has not been nearly so great as was hoped.

The writer has little doubt as to what is the chief reason for this. It is the existence in the community of a considerable number of infected persons who are only very slightly sick, or are not sick at all. A careful study of the cases of these diseases as they occur demonstrates that it is rarely possible to connect them with existing cases already recognized. Our methods of isolation, so far as they are applied to acknowledged cases, seem to be effectual. Every health officer is forced to admit that it is the unknown sources of infection which cause the trouble. The milder the infection, the less likely are the infected persons to be known, and the more difficult it is to control them. The present outbreak of smallpox is due to the mildness of the affection, very many cases being unrecognized. That many persons who are only slightly ill, or perhaps entirely well, are dangerously infected with diphtheria is well known. Bacteriological studies reveal the fact that from two to three per cent. of healthy persons are infected with growing diphtheria bacilli. It is true that the bacilli are not virulent in every case, but even if they are virulent in only a small proportion, we yet have enough to render it likely that these infected well persons are the chief factor in the spread of the disease.

While we are searching for better methods of dealing with these diseases, there is one line of warfare against them which ought to be pursued more energetically. If unrecognized infection is moving about among us, each of us must learn to protect himself. In diphtheria, tuberculosis, and scarlet fever in its early stages, and doubtless in smallpox, the virus is contained in the secretions of the nose and mouth. People should be taught to take care of their own secretions and to avoid contact with the secretions of others. In other words, they should be taught to be clean.

This matter was recently brought up in the Massachusetts Association of Boards of Health by Dr. Theobald Smith, and a committee of which he is a member drew up a report urging the teaching of cleanliness among school children and suggesting methods therefor. The means urged were as follows: (1) Lectures to teachers on the relation of cleanliness to health; (2) the distribution of circulars on this subject; (3) object teaching by the school department. The municipality should set an example in cleanliness in the provisions made for the pupils. The drinking cup used in common by the pupils should be abolished. The greatest care should be taken of the text-books, especially if furnished by the State, and soiled books should never be given out. Pencils, pens, etc., should be absolutely separate for each pupil. If slates are used each child should be required to use for erasing a cloth or sponge kept in its desk. If modeling clay is used each pupil's portion should be kept by itself. In general, it may be said that the school authorities should provide that each pupil shall have its own private school material, and that as little as possible shall be used in common.

In accordance with this plan, the following circular has recently been distributed among the teachers in the public schools in Providence, and similar but briefer rules will be distributed among the children. This circular is here given because it is believed to set forth some of the principles of cleanliness which should be practised and the reasons therefor.

Health Department.

Suggestions for the Teaching of Cleanliness Among School Children.

The poisons of some of the common and also of some of the most loathsome diseases are frequently contained in the mouth. In such cases anything which is moistened by the saliva of the infected person may, if it touches the lips of another, convey disease. The more direct the contact the greater the danger.

It is the purpose of health officials to keep in isolation all persons having communicable disease during the time that they are infectious. But in many cases this is impossible. Little restraint is put on certain mild diseases, as measles, whooping-cough, chicken-pox and mumps, and even such diseases as diphtheria, scarlet fever and tuberculosis are frequently so mild as to be unnoticed and children affected with them mingle freely with others. It is probable that in such

cases one of the chief vehicles of contagion is the secretion of the mouth and nose. It is believed that much can be done to prevent contagion by teaching habits of cleanliness. But if such instruction is to be effectual it must be continuous. The teacher must notice and correct violations of those rules as habitually as the violations of the more formal school rules are corrected.

Even if the question of disease and contagion did not enter into the matter at all the subject ought to be given more attention by teachers. Our schools should not only teach reading, writing and arithmetic, but it is perhaps quite as important that they should inculcate cleanliness, decency, refinement and manners. Cleanliness should be taught for its own sake even if it had no relation whatever to health.

Teach the Children

Not to spit; it is rarely necessary. To spit on a slate, floor, or sidewalk, is an abomination.

Not to put the fingers into the mouth.

Not to pick the nose.

Not to wet the finger with saliva in turning the leaves of books.

Not to put pencils into the mouth or moisten them with the lips.

Not to put money into the mouth.

Not to put pins into the mouth.

Not to put anything into the mouth except food and drink.

Not to swap apple cores, candy, chewing gum, half-eaten food, whistles or bean blowers or anything that is habitually put in the mouth.

Teach the children to wash the hands and face often. See that they keep them clean. If a child is coming down with a communicable disease it is reasonable to believe that there is less chance of infecting persons and things if the hands and face are washed clean and not daubed with the secretions of the nose and mouth.

Teach the children to turn the face aside when coughing and sneezing, if they are facing another person.

Children should be taught that their bodies are their own private possessions, that personal cleanliness is a duty, that the mouth is for eating and speaking and should not be used as a pocket, and the lips should not take the place of fingers.

A NEW CYSTOSCOPE, FOR THE SIMULTANEOUS CATHETERIZATION OF BOTH URETERS, AND FOR DOUBLE-CURRENT IRRIGATION OF THE BLADDER.

BY FREDERIC BIERHOFF, M.D.,

OF NEW YORK;

ASSISTANT ATTENDING SURGEON, DEPARTMENT OF GENITO-URINARY DISEASES, UNIVERSITY AND BELLEVUE MEDICAL COLLEGE; CORRESPONDING MEMBER OF THE FRENCH ASSOCIATION OF GENITO-URINARY SURGEONS.

The knowledge of the value of a comparison of the divided urines, collected simultaneously from both kidneys, as a means of diagnosis, and for the purpose of determining the degree of functional power of either or both kidneys, is rapidly gaining ground among surgeons. I need only mention the work of Albarran, Casper, Kümmel, Pasteur, Kelly and Brown in this field, and refer to the recent monograph of Casper and Richter for a complete exposition of the desirability of determining the condition and function of the kidneys prior to operation thereon.

With the single catheterizing cystoscope, the insertion of the first ureter-catheter was a comparatively easy task; but the insertion of the second (the first remaining *in situ*) was exceedingly difficult—at times even impossible. Owing to the fact that in order to allow the catheter to remain in the ureter, it was necessary, in withdrawing the cystoscope, to turn the entire instrument (and with it the catheter) so that the beak pointed upward, it frequently happened that the catheter became turned about the lamp and, owing to the occasionally present cramp-like contraction of the compressor urethræ muscle, pressed tightly against the instrument, and, by the withdrawal of the latter, also drawn out of the ureter. If the operator succeeded in leaving the first catheter *à demeure*, it frequently occurred that, on the insertion of the cystoscope a second time, the first catheter was found to lie in the way, to obscure the field of vision and to make the insertion of the second catheter into the other ureter very difficult, or impossible. On withdrawing the cystoscope the second time, there was present the additional danger that, owing to the compression of the first catheter against the outside of the cystoscope, this catheter or both catheters would be drawn out of the ureters.

To obviate these difficulties has been, of late, the aim of several. Casper has devised an instrument for the catheterization of both ureters, and it is described and illustrated in the monograph published by himself and Richter. Tilden Brown and W. K. Otis have each devised instruments for the same purpose.

The instrument which I have devised, and which is here described and illustrated, is designed to permit (1) the examination of the entire bladder; (2) the renewal of the filling-fluid, without removing the instrument, should the fluid become turbid during the operation; (3) the catheterization of one or both ureters during the one sitting; (4) the facilitation of the procedure of leaving one or both catheters *à demeure*.

It is a modification of the improved Nitze-Albarran catheterizing cystoscope and consists of a cystoscope upon which is the *movable* catheterizing portion (see Fig. 1). The latter contains two separate tubes in which the catheters pass, which terminate, at the outer end, in two separate cannulæ capped by the usual screw caps. At the inner end they terminate in two small, movable knee-mechanisms, which are controlled and moved by the large screw, as in the single catheterizing instrument. The size of the instrument is the same as that of the single catheterizing cystoscope (average 23 Charrière; 18 in the short, 28 in the long axis). The catheters to be used are somewhat smaller than those used for the old

instrument. I prefer to use one black and one brown catheter, in order to avoid all chance of mistake in the collection of the urines. There are also two stop-cocks to replace the screw-caps upon the cannulæ, when double-current irrigation is to be employed. The catheterizing portion, being removable, can be sterilized by boiling. The cystoscope itself must be sterilized by immersion in an antiseptic solution.

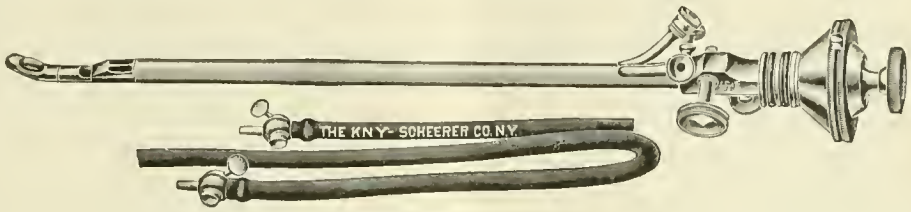


Fig. 1.

The method of using is as follows: The black catheter is inserted into the cannula upon the operator's left hand, the brown into the right. The instrument is then inserted as is the old instrument, and one or other ureter sought for and catheterized, the catheter being inserted about 4 to 5 cm. into the ureter. The knees are now turned down again, and the other ureter is located. During this latter procedure the first catheter moves out of the field of vision, and may be entirely disregarded by the operator. The second ureter is now catheterized, the knees again turned down, and the instrument turned so that the operator may assure himself, before withdrawing it, that both catheters are *in situ* (see Fig. 2). The lamp is then extinguished and allowed to cool, and the cystoscope turned upward, within the catheterizing portion, so that the beak points toward the median line of the abdominal wall, the catheterizing portion meanwhile being held, and continuing to point downward (see Fig. 3). The instrument is then slowly withdrawn, its removal being compensated for by a gradual insertion of more of the catheters into the cannulæ. When the knees of the instrument, with the catheters, appear at the meatus, the catheters are fixed, at the urethral orifice, with one hand, and the cystoscope steadily withdrawn with the other. It will be seen that, during the process, the black catheter has come to lie on the patient's left side, and the brown on the right. It is thus an easy matter to distiguish and collect the separated urines. It will be found, on following the above directions, that the entire procedure is much easier to carry out than with the old instrument. It has been used by me, since its completion, in three instances, two in the male and one in the female, and with *complete satisfaction.*

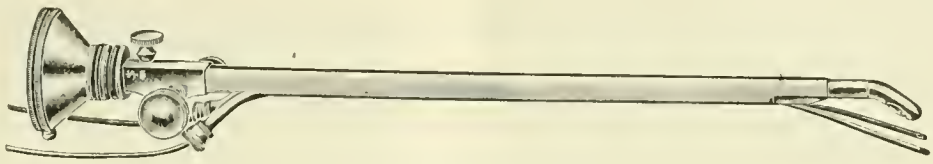


Fig. 2.

Should the fluid become turbid, during the course of the examination, the catheters and screw-caps may be removed and the stop-cocks, attached to rubber tubes, inserted into the cannulæ. The streams then, flowing through separate tubes, are kept distinct, and the one tube may be used for the inflow, the other for the outflow. It is, of course, not intended that clots or large shreds be removed, but simply the filling-fluid removed. In refilling, after irrigation, one stop-cock is closed, and the bladder filled through the other tube. Should it be desired to use the instrument as a single catheterizing cystoscope, one tube may easily be closed with the stop-cock.

Fig. 3.

The instrument was made for me by the Kny-Scheerer Company of New York, and represents in its entirety a product of American workmanship. It is a pleasant duty, in closing, for me to thank Mr. R. Kny, of the above firm, for his great kindness in placing their resources at my command, and to their assistant, Mr. Farner, for the masterly way in which all my suggestions were carried out.

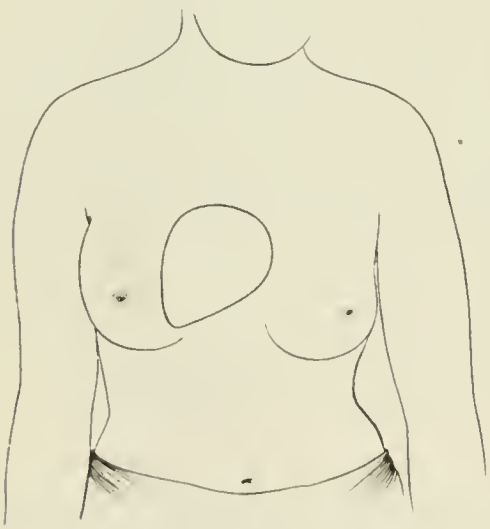
717 Madison Avenue.

CONGENITAL DEXTROCARDIA.

WM. EDGAR DARNALL, A.B., M.D.,
OF ATLANTIC CITY, N. J.;
PHYSICIAN TO THE ATLANTIC CITY HOSPITAL; THE MERCER HOUSE FOR INVALID WOMEN; FELLOW OF THE AMERICAN ACADEMY OF MEDICINE.

Cases of transposed viscera are always interesting, because they are rare and because they are deviations from the normal. Dextrocardia has been observed before, but it is rare enough for each new case to afford some points of interest and to justify its being recorded.

Mrs. F., aged sixty-nine years, widow of a clergyman, was referred to me from West Virginia. She consulted me for pains which she described as radiating down her arms. She also complained of digestive disturbances with the formation of gas in the stomach. She told me she had always contended that her heart was on her right side, but her doctor had laughed at the idea. There was, she said, such a "surging" on that side whenever her attacks of palpitation came on. I asked for an examination more out of curiosity than for any other reason. The examination revealed the following condition: The apex beat was an inch and a half below and half an inch within the *right* nipple. The superficial area of dulness extended from the apex, at a point between the fifth and sixth costal cartilages, to the median line of the sternum on the *right side;* thence up to the level of the upper border of the fourth costal cartilage, and from this point back to the apex. The diagram shows the position occupied by the heart. The sounds were normal at



Congenital dextrocardia.

the apex and pulmonary interspaces, and the condition had never been the source of any discomfort to her except at times a disagreeable palpitation, and in her younger days a tendency to syncope, which was easily induced by any sudden emotion or exertion. She had all her life been a remarkably healthy woman until within a few years. She had a small tumor removed from her left breast, at the age of eighteen, which was due to a traumatism. About six years ago the right breast was operated on for a small mass which was undoubtedly carcinomatous. She is now somewhat cachectic and the telltale pains in the arms led me to look further for secondary trouble. A small indurated area could be felt at the pyloric end of the stomach, which, together with the history and the digestive disturbances, made the diagnosis of malignant disease clear.

This trouble however has no bearing on the position of the heart, which has existed since birth, and is mentioned simply to emphasize the significance of the aching pains in the arms as betokening secondary involvement with malignant disease. No displacement of any other viscera could be detected, and the case is of interest only as an anomaly.

SOMNOLENCE AND LOSS OF MEMORY RESULTING FROM CHOLESTEATOMA OF THE MIDDLE EAR.[1]

BY FRANCIS R. PACKARD, M.D.,
OF PHILADELPHIA;
PROFESSOR OF DISEASES OF THE EAR IN THE PHILADELPHIA POLYCLINIC; AURIST TO THE OUT-PATIENT DEPARTMENT OF THE PENNSYLVANIA HOSPITAL.

The Proceedings of the Philadelphia County Medical Society for December, 1901, contain the report of a case of "Somnolence Caused by an Ear Lesion" by Dr. W. G. B. Harland. The patient was a boy thirteen years of age, whose personal history somewhat reminded us of that recorded of Dickens' fat boy in "Pickwick Papers," in that he would fall asleep when sent to a store and waiting for his order to be filled, or when at table, and indeed on every other possible occasion. Otherwise the boy was healthy and his condition was accounted for by the presence of a chronic suppurative otitis media, the pus of which had been dammed up by a mass of cerumen in the external auditory canal. After free exit had been given to the discharge, the boy's symptoms cleared up.

The case recalled to my mind one of a somewhat similar nature which came under my care last summer.

H. B., aged twenty-three years, a master mechanic, was referred to my office by Dr. J. E. Talley on July 9, 1901. For upward of twelve years he had had at intervals a discharge of foul-smelling pus from the left ear. This symptom, however, seems to have given him but little concern, as he had never considered it necessary to undergo any course of treatment for its relief. During the last year the patient had noticed that his memory was failing and that he was subject to attacks of intense sleepiness alternating with occasional headaches. This forgetfulness was such that he could not remember the simplest things; he would forget the names of people, and

[1] Read before the Section on Otology and Laryngology of the College of Physicians of Philadelphia, Jan. 15, 1902.

the things which he had intended to do in his work, and was absolutely unable by any effort to concentrate his memory so as to remedy the defect. Examination, after cleansing out a quantity of inspissated pus from the external auditory canal, revealed almost total destruction of the drum with a mass of granulation tissue covering over the upper part of the exposed middle-ear cavity. It was impossible to detect dead bone with the probe. There was marked bulging of the upper posterior wall of the external auditory canal. Operation was advised, and on July 13th, assisted by Dr. Walter Roberts, I opened the mastoid and proceeded to remove a great quantity of dead bone in immediate proximity to the middle-ear cavity with huge cholesteatomatous masses in the interior of the mastoid process. The patient made an uninterrupted recovery, and when last seen in December, 1901, five months after the operation, told me that he had had absolutely no return of headache or of somnolence, and that his relatives noticed that he was able to remember things and was much brighter mentally. There was no discharge from the ear.

In this case I had expected to find some evidence of meningeal trouble upon opening the skull, but, although a considerable surface of brain membrane was exposed, there was no evidence whatever of any pathological condition.

In the discussion of Dr. Harland's paper Dr. Burnett remarked "that somnolence from otitic influences is rare and its etiology obscure." He stated that the case of Dr. Harland was the only one which had come under his personal observation. Dr. Burnett divides these somnolent and syncopoid states depending upon aural lesions into two classes, those in which there is extension of the suppuration of the purulent ear disease to the cerebral surface, and those in which the brain symptoms are due to direct inward pressure of the stapes.

I do not doubt that in the case which I have reported the cerebral symptoms were the result of at least a congestion of the meninges and possibly of a slight recurrent meningitis. In view of Dr. Burnett's statement as to the rarity of the condition it seems to me that the case is worthy of record.

URTICARIA OF THE UPPER RESPIRATORY TRACT.[1]

BY LEWIS S. SOMERS, M.D.,
OF PHILADELPHIA.

The erratic and migratory character of the lesions of urticaria upon the dermal surface and their extensive distribution would naturally lead one to expect the presence of the eruption upon the mucous membrane of the upper air tract with greater frequency, and, although a careful search of the literature reveals less than two score cases, yet the affection undoubtedly involves the mucosa much more frequently than the reports of such cases would indicate. One of the earliest recorded instances of the disease involving the throat was in 1862, in a male who had taken a large dose of quinine for malaria and immediately developed severe itching of the neck, chest, arms and legs, accompanied by the typical wheals of urticaria, continuing until the following day, when a sudden attack of suffocation with laryngeal stridor and aphonia developed, but all the symptoms rapidly subsided under treatment.

That the mucosa is not involved more frequently is difficult to explain, although, as suggested by Packard, its relative infrequency is probably best explained by the absence of irritation of the mucosa such as is produced on the dermal surface by the clothing and unwarmed air. This is hardly plausible even as a negative explanation, however, and some more subtle factor must exert its prophylactic action in the large number that suffer from dermal urticaria and in whom the respiratory tract presents no abnormal changes.

Corresponding to the affection as seen upon the cutaneous covering, it may be either acute, when the symptoms usually assume a most alarming aspect, or chronic, as is more rarely the case. In either variety, but especially in the former, two types of the disease may be clearly distinguished, the first being that in which the skin eruption makes its appearance primarily and is followed by the development of the wheals upon the mucous membrane, while in the second type, the difficulty of diagnosis is greatly enhanced by the appearance of the respiratory symptoms first, followed later by the skin eruption. In this latter form the disease closely simulates other laryngeal affections accompanied by edema and respiratory distress, and in the absence or delayed appearance of the cutaneous wheals the diagnosis may be impossible, the disease not being recognized at all, or, as has been suggested by others, the affection is considered to be asthma.

Milton has reported two cases, the first showing the usual clinical variety with the initial skin lesion and later involvement of the mouth and throat, while his second patient belonged to the latter class, beginning with great difficulty in breathing, which subsided upon the development of wheals on the skin. Merx illustrates the chronic form of the disease in a neurasthenic male of thirty-four years, with repeated attacks of dysphagia and burning in the larynx and pharynx which disappeared in a few hours after treatment. The wheals came on in a series of irregular attacks and during its course the uvula, soft palate, tongue, epiglottis and vocal cords were involved. Gaudier records an interesting case in which there was sudden onset of itching and dryness of the mouth with a foreign body sensation in the throat. The mucous membrane of the oropharynx and epiglottis was swollen from the wheals, but no dermal lesions appeared during the attack, the diagnosis being made by the sudden appearance of the affection after partaking

[1] Read before the Northwestern Medical Society of Philadelphia, Nov. 5, 1901.

of food, the physical appearance of the lesions, and its complete disappearance in twenty-four hours.

The acute febrile form of urticaria is but rarely seen. It appears suddenly, the eruption is scarlet in color, with great swelling; and, while the face, trunk and limbs are usually the seat of the eruption, it may involve the larynx and pharynx with the production of dangerous obstructive symptoms.

The following case was one in which urticaria appeared simultaneously on the dermal and mucous surfaces and bore a definite relation to the ingestion of improper food.

Miss L. A., eighteen years of age, of robust health and without any history of illness except hay-fever which had existed from August to October for three years. The attacks of hay-fever were typical even to the hour and day of their appearance, and she had suffered from the constant watery nasal discharge, irritated conjunctivæ, sneezing, palate and chin pruritus until the first frost, when the symptoms would subside and no demonstrable lesions of the upper respiratory tract would be evident. On several occasions she had slight attacks of urticaria limited to the trunk and arms, and she was able in every attack to trace the exciting cause to the partaking of almonds of which she was extremely fond. Other food such as strawberries, shellfish and even nuts of various sorts, with the exception of almonds, could be partaken of with impunity; for a number of years she had given up eating almonds on this account.

While under treatment during her third attack of hay-fever, I was hurriedly summoned as it was supposed she was having an attack of fatal suffocation. On my arrival there was great dyspnea, inspiratory efforts were short and feeble, the face was cyanosed, there was suprasternal retraction, and the mouth was widely open in the patient's violent efforts to obtain sufficient air. Her features were unrecognizable from the presence of multiple wheals, and, between gasps in a voice which was almost aphonic, she complained of great physical prostration and of burning and itching from the urticarial eruption which covered the entire surface of her body. The tongue was swollen so that it was protruded with great difficulty, the uvula was lobulated, due to the presence of two giant wheals, and almost filled the arches, while the mucous membrane of the mouth, pharynx, epiglottis and the aryepiglottic folds as far as could be seen were swollen from the eruption.

The oropharynx was sprayed with a solution of cocaine and, as the swelling subsided, the larynx was seen to be involved to such an extent that but a minute fissure existed below the false cords, which were almost approximated; below this point, however, no eruption was apparently present. She was given small pieces of ice in the mouth, a dilute carbolic wash was used on the dermal surface and the bowels were freely moved by high injections, later followed by a large dose of salts. The cocaine and ice rapidly reduced the swelling of the respiratory tract, within an hour the mucous membrane had resumed its usual aspect, and all the symptoms referred to this particular region had disappeared, with the exception of nasal stenosis, which had not been considered to any extent previously. On examination of the nasal chambers the mucosa was seen to be covered with wheals, but as they were subsiding no direct treatment was applied. The skin changes were about five hours in disappearing; on the following day she was perfectly well. An interesting phenomenon noticed during the height of the attack was the presence of apparently complete deafness, due to the mucous membrane of the tympanic cavity and Eustachian tubes being occluded by the wheals. The cause of the attack was readily explained, as she had given way to her appetite for almonds and within a few minutes after partaking of a considerable number the threatening symptoms developed.

The predisposing cause as regards the liability to attack of the upper respiratory tract is apparently unknown; in my case no structural abnormalities existed; while this is apparently true in the majority of reported cases there are a few in which slight deviations from the normal were observed, but the evidence is against this playing any part in the tendency to the eruption here. A general idiosyncrasy of the patient, a peculiar vasomotor weakness of the mucosa and the effect of an exciting cause, such as the eating of improper food in the individual case, must be taken into consideration. The association of urticaria of the mucosa with hay-fever is rarely observed, although its presence upon the dermal surface is not at all uncommon and the disturbed vasomotor equilibrium at such times strongly predisposes the hay-fever sufferer to attacks of the ordinary forms of urticaria in the presence of an active exciting cause.

In a person predisposed to urticaria the development of the wheal upon the mucous membrane of the nose, pharynx or larynx may result from any of the usual exciting causes, such as irregularities in diet, certain foods and drugs and contact with animal or plant life, these factors, of course, operating upon the dermal surface in the majority of instances, while the mucous membrane involvement may be considered as a complicating incident, except in those cases in which the membrane is at first affected as the result of the ingestion of certain foods or drugs, or due to an idiosyncrasy of the individual as yet undetermined.

In severe cases the general symptoms antedating the appearance of the wheals upon the mucosa are often distressing, as in a case reported by Woodbury, in which there were rapid pulse, profuse perspiration on the forehead and fainting, while in Chittenden's patient there were attacks of recurrent hematemesis. Before the eruption appears a vague feeling of distress may be bitterly complained of and great physical weakness and nausea may also be experienced, while in cases of

a mild type little or no complaint may be made until difficult breathing is first noticed.

Except for the nervous element dependent upon the skin lesions, the majority of the general symptoms, such as the change in pulse-rate and the feeling of impending evil, are the result of the beginning impairment of respiration, this usually being the first symptom noted, while if the posterior pharyngeal wall or esophagus be involved dysphagia becomes marked. The suffocation increases with the increase in size and number of the wheals, the face becomes cyanosed, the voice is hoarse or to a great extent lost, depending principally upon the laryngeal involvement, although it may be considerably altered from the swelling of the uvula and epiglottis.

A sense of burning and pruritus may be referred to the affected mucous membrane, or one may preponderate for a time with sudden alternations in the character of the subjective phenomena. This is especially noted in mild cases, as in those in which the respiratory distress is great little attention will be paid to minor symptoms, so that the degree of paresthesia of the mucosa bears little or no relation to the extent of the swelling. In the chronic form this pruritus may be quite prominent and resemble the sensation produced by a foreign body, as in the case of chronic urticaria of the mucosa seen by Freudenthal. When the epiglottis or larynx becomes involved, the dyspneic symptoms rapidly assume a most alarming aspect and a condition in all essentials similar to edema of the glottis results, with the suffocative attack increasing in intensity as the air space becomes more and more encroached upon. The wheals here and higher up in the air passages are invariably accompanied with some increase of the local temperature, but this, like the pruritus, is fugacious in character and rapidly disappears as the lesions subside.

In the acute cases, the mucous membrane of the oropharyngeal cavity, nose and larynx may be involved in part or as a whole with the typical swellings of the disease, differing in no respect from those seen on the skin, but appearing as tense, shining elevations, of varying shades of red, with a lighter hue at the summit of the elevation, while in some cases the apex of the wheal is a shining yellowish-white from local restriction of the circulation. But a limited area may alone be involved, as in the case seen by Hinsdale in which the brunt of the swelling was borne by the uvula, which was enlarged, edematous and allowed with difficulty the entrance of air to the larynx; or the tongue may be affected, as in cases reported by Hutchinson and Hamilton, the swelling being so great in the latter's case that incision had to be resorted to. The wheals are usually round or ovoid in appearance but they may coalesce in the limited space of the air tract and form erythematous swellings of considerable areas of the mucosa. Again they may appear as irregular patches, and the size and form will vary greatly as successive crops develop.

In the chronic form, as in the case recorded by Goodale and Hewes of a man with urticaria of the tongue, the symptoms are not so violent as in the acute variety, although the mucous area may feel sore and urticarial patches may be present to a greater or less degree for months or even years.

The development of wheals upon the mucosa, preceding any dermal manifestations may, especially if intralaryngeal in origin, lead to serious errors in diagnosis; and it is not at all improbable that cases of mild urticaria of the mucous membrane of this region are not diagnosed as such, but are treated on essentially different lines from those which would be adopted if the nature of the affection had been recognized.

The duration of the eruption upon the mucosa, like that upon the skin, is commonly but a few hours in the acute cases, although some of the symptoms may last for several days, and evidences of the wheals, especially upon the lingual surface, may be seen for nearly a week after all respiratory distress has disappeared. In the cases in which the eruption appears first on the mucosa, it may be an hour or more before the dermal signs become prominent, but as they appear the primary lesions recede, as a rule, and under appropriate treatment it becomes only a question of a few hours before the alarming aspects have entirely subsided. Remissions may however take place, but they are chiefly confined to the dermal wheals and not to the mucosa, although the pruritus attendant upon the eruption on the mucosa may from time to time become augmented, with slight increase in the number of the wheals. When the urticaria appears upon the dermal surfaces primarily, the mucosa is usually not involved until a number of hours have elapsed from the full development of the dermal wheals, and when developed is apt to remain somewhat longer than when it occurs primarily in the larynx or pharynx. The subsequent course, however, does not differ in any essential respects from the primary mucous membrane cases. Thus, in Gibb's patient on the evening of the second day the eruption diminished, but hoarseness and dysphagia came on with increased intensity, while on the following day the patient was well. Fortunately, the predilection of the disease is toward the skin, and in practically all the acute cases the wheals appear upon this part more or less rapidly, to the great relief of the local lesions.

No difficulty should be experienced in recognizing urticaria of the upper respiratory tract when the lesions are also present upon the cutaneous surface, and it is only the cases in which the eruption is limited to the mucosa that will present any difficulty. The local appearance of the wheals differing from other forms of eruption seen upon the mucosa, the apparently inflamed condition of the parts, with separate areas of local ischemia situated at the summit of the reddened patches, and the migratory property of the wheals, with their fugacious character, will all aid in the recognition of the individual case. Occasionally it will take the form of acute edema of the mucosa, or it may be practically limited to the epi-

glottis, when its recognition will become almost impossible, but in all cases the symptoms are more or less distinctive, as they occur suddenly, are evanescent and produce pruritus akin to that of the dermal lesions.

The history of previous attacks of urticaria, even if they have not involved the mucosa, is an important aid in diagnosis and in practically all cases before the disturbance of the mucosa has entirely subsided, the appearance of isolated or multiple wheals on the skin will clearly indicate the nature of the affection. The presence of an unrecognizable cough, or periods of minor obstruction to breathing associated with irregular attacks of cutaneous urticaria, should at least lead to the suspicion of some relation existing between the two phenomena, and the placing of the patient under an appropriate treatment based upon such an association may be the means of elucidating some of these obscure cases which are usually unrecognized.

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MEDICAL PROGRESS.

PATHOLOGY AND BACTERIOLOGY.

Relation of Angiomata to Carcinoma.—Stimulated by the recent article of Leser on the frequent coexistence of multiple skin angiomata and carcinoma and the help in diagnosis which the former offer, D. Gebele (Münch. med. Woch., Jan. 28, 1902) examined 21 cases of undoubted carcinoma and 200 of a number of other diseases. Of the former, only a little over half presented the angiomata; in the latter they occurred in 43 per cent. According to these observations, they lack all value for purposes of diagnosis and simply show a retrogressive change in the tissues, which naturally is most marked in advanced age, when malignant tumors also are more prevalent.

Differential Staining of Blood Films and Malarial Parasites.—Among the new blood stains which are rapidly being devised that recommended by J. H. Wright (Jour. Med. Research, Jan., 1902) deserves especial mention. The author claims that it not only gives a differential staining for the chromatin and cytoplasm of malarial parasites, but as a general staining method for blood is superior to Jenner's in that it sharply differentiates the neuclei and cytoplasm of the lymphocytes and large mononuclear leucocytes as well as the granulations of the leucocytes in general. For the preparation of the staining fluid one per cent. of methylene blue (Grübler) is added to a one-half-per-cent. aqueous solution of sodium bicarbonate in which the bicarbonate is thoroughly dissolved. This mixture is then steamed in an Arnold steam sterilizer for one hour, counting from the time after "steam is up." When cold the mixture is poured into a large dish or flask and a sufficient quantity of a 1-1000 aqueous solution of eosin added until the blue color is lost and a purple color appears with a scum of a yellowish metallic luster on the surface. During the addition of the eosin the mixture should be constantly stirred or shaken. When the addition of the eosin is complete a finely-granular black precipitate appears in suspension in the mixture. This is removed by filtration without washing and when thoroughly dry is added to pure methylic alcohol to saturation. This saturated solution is filtered and to the filtrate is added 25 per cent. of methylic alcohol. This dilute alcoholic solution is the staining fluid. The technic for using the stain is as follows: (1) Make films of the blood, spread thinly and allow them to dry in the air. (2) Cover this preparation with the staining fluid for one minute. (3) Add water, drop by drop, until the mixture becomes semitranslucent and a yellowish scum forms on the surface. Allow this mixture to remain on the preparation for two or three minutes. (4) Wash in water until the film has a yellowish or pinkish tint in its thinner or better spread portions. (5) Dry between filter paper and mount in balsam.

Branching in Bacteria with Special Reference to B. Diphtheriæ.—In recent years much attention has been given by investigators to the branching forms of various bacilli so frequently observed. The subject is of great importance from the viewpoint of the classification of such micro-organisms. As the result of detailed study H. W. Hill (Jour. Med. Research, Jan., 1902) shows that passive degenerative changes in dead or dying bacilli may give rise to slight irregular projections which distinctly simulate branches. As a part of the active development of the diphtheria bacillus, active branching by apparent budding, ending in the production of an oval or elliptical body, probably capable itself of further development and the production of new rods, may occur in very young cultures, the parent stem then degenerating. As a part of the active development of the diphtheria bacillus, branching similar to that described, but terminating in an ordinary diphtheria rod-like body and without any degeneration of the parent stem at the point of origin, may occur within twenty-four hours of inoculation; and this new rod may segment in the ordinary way or itself produce branches, terminating in rods similar to itself or in oval bodies such as described. Various modifications of all the processes of branching probably exist. The origin of the active multiplicative branching may be reversionary or evolutionary or merely due to special conditions of growth not understood at present. According to the latter view, the active forces usually resulting in fission may at times undergo a lessening of tension or some other modification which results in a change

in direction of their activities. Whether such a change is retrogressive or progressive has not as yet been determined.

Dermoid Cysts and Teratomata of the Anterior Mediastinum.—The general subject of dermoid cysts and teratomata is one of much interest. While they are comparatively common in certain locations, as the ovary, their great infrequency in the anterior mediastinum has led H. A. Christian (Jour. Med. Research, Jan., 1902) to report a case which recently came under his observation. The patient, a female thirty-eight years of age, had complained of indefinite pulmonary symptoms for six years. For two years previous she had coughed up hairs at intervals. During the last few weeks there had been several attacks of hemoptysis. On physical examination there was dulness in the right chest which diminished in extent after attacks of coughing during which much material was brought up. A few hours before death there was a gush of blood and pus from the mouth and with this material a few hairs were mixed. At autopsy a tumor as large as a cocoanut presented itself in the lower portion of the anterior mediastinum. It extended from the diaphragm nearly to the bifurcation of the trachea and was attached to the inner surface of the right lung from its base to a point 6.5 cm. below its apex. When opened the tumor presented a cavity containing about 200 c.c of whitish-yellow, semi-solid material, full of long, delicate, curly, blond hairs. Over the anterior part of the wall of the tumor and pleura there was in places a layer of fat and fibrous tissue 5 to 6 mm. thick. In the right half of the tumor there were small, scattered, bony plates adherent to the wall. The entire inner surface of the tumor was trabeculated. Microscopical examination showed the characteristic appearance of teratomatous growths. After reviewing the literature of the hitherto reported cases the author concludes that teratomata in the anterior mediastinum generally give evidence of their presence during early adult life and are of relatively long duration. Their most frequent position is immediately behind the upper portion of the sternum. They may be classified as follows: (1) Tumors of ectodermal origin with the addition of some tissue from the mesoderm—dermoid cysts. (2) Tumors derived from all three germ layers—teratomata. (3) Dermoid cysts or teratomata which in some part of their structure show evident malignancy. The coughing up of hair is pathognomonic of this mediastinal condition. Cure is possible only through surgical procedure. The genesis of these tumors is to be referred to the fetal period of life.

SURGERY.

Quinine in the Treatment of Wounds.—It may seem unnecessary to offer a new means for treating wounds, but in this capacity quinine has lately come to the front. J. Hevesi (C'blatt. f. Chir., 1902, No. 1) has been working along these lines lately, and offers a new form of quinine which is called lygosinate, which has been prepared synthetically from salicylaldehyde by Prof. Fabinyi. One of the same group of salts, namely, the lygosinate of soda was presented in 1898 to the International Congress for Hygiene at Madrid, by Prof. Marschalko, who claimed great efficiency for it in soft chancre and in gonorrhea in women. For surgical purposes the drug recommended itself on account of its insolubility, and less so for its rather strong decolorizing influence. Later Fabinyi produced a scarcely soluble preparation, using quinine and thus producing diorthokumarketon. The finely-divided orange-colored powder is scarcely soluble in water, but readily so in alcohol, benzine, and chloroform. It contains 70.8 per cent. quinine. In boiling oil it passes into solution, five parts in one hundred. It has a bitter taste, and an almost imperceptible, slightly aromatic odor. In the hands of this author the bacteriological experiments proved that the drug has a very remarkable power to destroy micro-organisms. No cases of poisoning from the drug among animals were seen. The drug was used as a powder for dusting on wound-surfaces, for impregnating gauze, and other dressings, for suspension in glycerin, and finally for combination with the gum on adhesive plaster. A thin layer of the powder dusted on was used in many cases of unclean wounds in patients who were walking about, in foul, gangrenous conditions, and the like. In all these it acted as a deodorant and an antiseptic, so that the poisonous secretion soon became harmless, odorless and only slightly purulent. Meanwhile the whole wound became a lively, healthy area of granulations. Ulcerating cancer also was deodorized and dried by means of the powder. In cases of bone disease a ten-per-cent. suspension of the drug in glycerin was injected into the wounds or the powder itself was rubbed in. Here also similarly successful results were obtained. Sinuses and fistulæ yielded to it. Similar other well-known chronic surgical conditions are benefited. Bleeding, especially oozing from the parenchyma of organs, is easily checked with the aid of this preparation. Most important of all is the fact that it is not poisonous because so little of it is absorbed.

Nephrectomy.—In the diagnosis of various kidney lesions necessitating excision of the organ, several important methods of examination and investigation have been instituted. L. J. Ladinski (Med. Rec., Feb. 8, 1902) in presenting cases of calculus and pyonephrosis, tuberculosis, new growth and suppuration, points out some of the valuable methods employed in diagnosis. Catheterization of the ureters gives much information of a definite character at times, but it is very difficult in the male and there is danger of carrying infection up the ureter. The cystoscopes of Nitze and Kelly and the segregator of Harris assist much in determining the character of the urine from the two ureters. The X-ray may be used with success in renal calculus, but is not always reliable. The freezing-point test of the urine (cryoscopy) is a test of the function rather than of the structure of the organ, and when a part of the kidney has been destroyed or removed it lends no information concerning the condition of the remainder. A thorough examination of the urine is, however, necessary in order to arrive at a satisfactory diagnosis of the nature of the malady. In calculus the urine is invariably acid, there are microscopical or macroscopical traces of blood and an excess of crystals of the salts composing the calculus. If there is an accompanying pyonephrosis the urine is the same in character as in suppuration. In tuberculosis there may be no change in the urine in the early stages; in the advanced cases varying amounts of pus and blood may be found. At first the urine is acid, but it may become alkaline afterward. The amount of urine is increased early, but the urea is much diminished. Tubercle bacilli are sometimes difficult to find. There are very few changes indicative of new growth. Small amounts of blood may be found in the urine and when the pelvis of the kidney is involved elements of the growth may appear. In suppuration, when the process is in the kidney substance, the urine is acid and purulent and frequently contains blood; when the pelvis is involved the urine is acid at first, but later it becomes neutral or alkaline, especially so if the mucosa of the

bladder become affected. The principal symptoms common to these kidney lesions are: (1) pain, (2) hematuria and pyuria, (3) tumor, (4) frequent and painful urination, (5) polyuria or anuria, (6) febrile condition. The differential points are as follows: In calculus, besides the renal colic, there is pain, due to the presence of the stone, which radiates into the pelvis, paroxysmal in character and increased on exercise. In tuberculosis the pain is usually slight. In new growth, it is generally severe, radiating in all directions. In suppuration it is variable. In calculus, there is very little hematuria, except during the passage of a stone, when there may be considerable. In the other diseases, blood is occasionally present. Frequent and painful urination is always present in tuberculosis (in fact, may be the first symptom) and occasionally appears in calculus and suppuration. Polyuria is especially noted in tuberculosis. Anuria is due to obstruction of the ureter. In calculous pyelonephritis there is a slight elevation of temperature, in tuberculosis a characteristic evening rise and in suppuration a continuous or intermittent high temperature.

Spinal Anesthesia with Tropacocaine.—Another addition to the already rich literature of spinal anesthesia is the article by K. SCHWARZ (Münch. med. Woch., Jan. 28, 1902), who has tried cocaine, eucain B. and tropacocaine extensively and expresses his preference for the latter, which he has used in over a hundred cases. His technic does not differ from that usually described. For operations on the rectum and lower down, 5 centigrams were injected; for higher regions, 6 centigrams were sufficient. In contrasting the effects and after-effects of tropacocaine injections with those of cocaine injections, the author finds (1) that during the operation nothing more than a slight pallor or cyanosis appears; vomiting is exceptional and occasionally there is some slowing of the pulse and involuntary discharge of urine and feces; (2) vomiting after the operation is also unusual; (3) headache, the most prominent symptom after cocaine, was present in but 11 per cent. of the cases, but was not nearly so severe in intensity; in a few it came on only during the third or fourth day and lasted two days; (4) rise of temperature with chills is always absent; the highest temperature recorded was 38.2° C. (100.7° F).

Effects of the X-ray.—The ordinary burn from the employment of the X-ray can at present be largely obviated by a better knowledge of the method. There is a certain condition, however, which differs from the so-called burns, and in which the skin of the exposed part becomes red, thickened, and as hard as in scleroderma, and is accompanied by excruciating boring pains. J. C. JOHNSTON (Phil. Med. Jour., Feb. 1, 1902) believes that this condition should be classed with the other precancerous keratoses, a preliminary stage of the squamous-celled type of epithelioma, in which the only change is a thickening of all the layers of the surface epithelium, or, in other words, in which cornification is the principal clinical feature. He reports two cases, one, the most marked, in a surgeon who employed the X-ray extensively. When first seen the skin of the hands was dry and scaly, the cuticle thin and atrophic, and on the dorsum were a number of hard, cornified growths, translucent and pearly. Examination of certain ones, after excision, showed marked malignancy with tendency to deeper invasion. The patient stopped his work and rest was enjoined. To prevent irritation of the skin a mixture of equal parts of hydrogen peroxide and glycerin gave the best results. After some months a recurrence was noted at the edge of the scar, which was excised down to the tendon and the wound grafted. This, however, showed no malignant traits, although the remaining cornifications are probably potentially malignant. Early and complete removal is therefore recommended.

Stammering Bladder and Urethra.—Sir James Paget was the first observer to call attention to and to name this interesting and relatively frequent condition. His clinical picture is extremely graphic. "The patient can often pass his urine without trouble, especially at customary times and places, and when he does so the stream is full and strong and he has nothing the matter with him. But he is in trouble if anyone is looking at him or if he is hurried, as at a railway station. He cannot pass a drop of urine, or, after a few drops there comes a painful check and the more he strains the less he passes; and then complete retention may ensue and overfilling of the bladder. Nearly all these cases find a parallel in the phenomena of stammering speech. In both alike there is usually a history of the difficulty having been felt in early life; in both alike are observed the strong influences of habit and association of ideas, the effect of transient changes in the nervous system, and the influence of distraction of mind. Equally in both classes of patients may be noticed the coincident general sensitiveness of the nervous system and the family relationship with persons who suffer from various other forms of nervous disorder." E. H. FENWICK (Brit. Med. Jour., Feb. 1, 1902) in an interesting review of this urinary trouble states that recent writers have tended to obscure rather than to clear views which were given us by Paget. He urges the necessity for holding in mind a classification based on the belief that there are two great etiological factors, widely separated, but productive of very similar symptoms, a neurosis which gives true urinary stammering and a stricture which produces false stammering. Fenwick, in considering the pathology and treatment of the first form, states that Paget's view that it never leads to any functional disorders is incorrect; he has seen cystopyelitis and other conditions develop from the severer forms. It is the compressor urethræ rather than the sphincter vesicæ which obstructs the free flow of urine. This can be proven very simply by passing into the membranous urethra a terminal-eyed catheter through which the patient can urinate freely. If the bladder has not become atonied by neglect, free and healthy urination can be permanently secured by tenotomizing the compressor urethræ without opening the urethral tube. This simple operation is done by cutting the membranous region through to the urethra upon the usual grooved guide. That spasm of this muscle rather than of the sphincter is what causes the trouble is further shown by the immediate relief afforded in cutting it and subsequently by the singular "pull" upon the perineal scar just before urination as though the muscle were still endeavoring to close the membranous urethral tube.

Incising, Searching and Suturing the Kidney.—In searching for renal stones, albeit they may previously have been demonstrated and very exactly localized by the X-ray, a very considerable choice exists as to the precise line of incision. H. A. KELLY (Brit. Med. Jour., Feb. 1, 1902) in an address before the New York State Medical Society says that this question as to the best position for incision is at present of maximum importance in the treatment of renal calculi. The whole problem hinges on the character of the renal vascularization. Mr. Broedel of Johns Hopkins has, under Kelly's advice, made a very valuable series of observations on this point. His conclusions are that the kidney is typically supplied by two arterial systems which are completely separated by the renal pelvis. "There is a major system carrying three-fourths of the arterial blood, providing for the anterior and a part of the posterior half of the kidney; and a minor system carrying

one-fourth of the arterial blood, providing for the remainder of the posterior portion. * * * The nearer the surgeon makes his incision in the line which divides these completely separated systems, the less blood is lost. If, however, he strike the major vessels of either of these systems the hemorrhage may be frightful, even great enough to cost the patient's life." It will be seen that there exists in the normal kidney a zone of tissue which is relatively poor in blood. There are certain anatomical landmarks on the surface of the kidney which are easy to find and sufficiently reliable for practical purposes. However, as there is in the undistended kidney rarely a space of more than a few millimeters between the anterior and posterior vascular planes, it is necessary prior to operating to pass a ureteral catheter and distend the kidney with water. This procedure was suggested by Mr. Broedel. Immediately on dilatation the vascular zones separate as much as two centimeters or more, and, if the kidney is cut into while distended, there is less injury to the cortex and the operator is at once made aware of the opening into the pelvis by the sudden gush of water. A third use of the catheter is, of course, that prior to operation one can by irrigation render the kidney relatively clean. The kidney surface is made up of irregular lobules the size of the end of one's thumb. These are bounded by whitish lines which represent the columns of Bertini which extend up between the pyramids. On the anterior surface these white lines coalesce in a longitudinal line, which Kelly proposes to call Broedel's white line. In order to make the incision correctly, one must cut parallel to Broedel's line, leaving about three-fifths of the kidney anterior and two-fifths posterior to the incision. The cut must be extended in a parallel direction to the posterior surface and not angling toward the center of the kidney as one would naturally incline to do. Through such an incision, which is relatively bloodless, both anterior and posterior systems of calyces can be explored. In about two-thirds of all kidneys, owing to irregularities of fetal development, the circulatory distribution is abnormal. In these cases it is usually possible to recognize the anomaly by finding Broedel's longitudinal white line, not on the anterior surface but back, as well as by noting the arrangement of the arterial trunks at the hilum. The kidney may be closed by three rows of sutures, one of fine gut to approximate the pelvis; one series of mattress sutures carried through the entire parenchyma; one, for accuracy only and not absolutely necessary, to closely approximate the capsule.

THERAPEUTICS.

Treatment of Gout.—As the etiology of this disease is still very obscure, it is impossible to place the treatment upon a scientific basis which will fit all cases. Experience, however, has taught that certain methods are invaluable no matter what the cause. M. Heineberg (Med. Times, Feb., 1902) believes that the most rational and most efficient treatment is the regulation of the diet. Elimination of nitrogenous and albuminous principles which result in the formation of urea or uric acid is especially important. This excludes "butcher's meat," also eggs and cheese. Milk, butter, fresh, vegetables and fruits are allowed. Oysters and lobsters can be partaken of moderately and poultry occasionally. Rice, potatoes and sugars are often interdicted by authorities, but may be allowed in reasonable amount. The wines which cause the most trouble are those which contain a considerable quantity of both alcohol and sugar, such as port, sherry and Madeira. Sweet champagnes also quickly produce gout. Whisky seems to have little effect upon the disease. Stout, porter and strong ales are a factor in producing the disease and even beer may have an influence. The drugs which are used in treating the disease strive to eliminate the poison by the kidneys or bowel. For this purpose the various alkaline waters are employed. Colchicum, the classical remedy, is efficient through its action upon the liver. The following combinations of the drug are very good:

℞ Pillulæ hydrargyri,
Ext. rhei,
Ext. colocynth. comp. ..... āā. gr. x.
Ext. colchici acetici ..... gr. xv.
M. Make into 15 pills. Sig. One every three hours till relieved.

℞ Liquor potassæ 3ss
Ext. taraxaci 3i
Tinct. colchici ..... ℥x
Syrupi 3i
Aquæ pimentæ ad 3x
Sig. One dose.

After the bowels have moved thoroughly, give this mixture:

℞ Sod. salicylatis 3iv
Sod. nitratis ..... gr. cl
Pot. iodidi ..... gr. cxx
Vin. colchici rad. ..... ℥xc
Syr. gaultheriæ 3v
Sig. One tablespoonful in half glass of water twice daily for a month.

Treatment of Simple Chronic Bronchitis in Infants.—The treatment of this condition must be local and general. Local treatment, writes J. L. Daguzan (Gaz. hebd. de Méd. et de Chir., Jan. 26, 1902), varies according to the severity of the disease. If the secretion is abundant and obstructs the bronchi, an emetic is indicated; ipecac renders excellent service for this purpose. In subacute cases revulsives are in order; dry cups, tincture of iodine or mustard poultices may be utilized. Vesicatories are on no account to be used. If gastro-intestinal disturbance be present, jalap or scammony in small doses may be given with ipecac. To drain the secretion, balsams are useful—tolu, turpentine or benzoin. The constitutional treatment is of extreme importance. If lymphatism be present, cod-liver oil must be tried; if it be not well borne, prescribe syrup of the iodide of iron or some similar preparation. To rachitics give oil of phosphorus or calcium lactophosphate. Iron preparations are indicated for debilitated children. While tonics are not to be neglected, preparations which are based on alcohol are not recommended. Hygienic treatment should really be considered first. Without a well-chosen diet, substantial and easily assimilated, nothing can be permanently accomplished. During an exacerbation the patient must be ordered to bed. In the intervals sojourn in the country is to be urged. Moderate exercise and massage will augment general nutrition.

ANATOMY AND PHYSIOLOGY.

A New Nutrient Preparation.—As Nature already furnishes the carbohydrates and fats in a concentrated form, the desire for albuminoid foods has resulted in the production of numerous preparations. As a substitute for these a preparation of gelatin is put forward by H. Brat (Deut. med. Woch., Jan. 9, 1902) which he calls "gluton." It is obtained by allowing an acid (HCl) to act on gelatin for several hours at a fairly high temperature, and then neutralizing the same. The filtered product is then steamed, dried, and ground into a fine powder. It is tasteless and readily soluble in cold water. After clinical trials, it is claimed that it is more completely used up than other nutrient prod-

ucts, that it has a higher nitrogen content, is readily digested even in large and continued doses, and can be administered to patients with high temperatures or to those to whom can be given only a liquid diet.

EYE, EAR, NOSE, AND THROAT.

Prognosis in Operations for Glaucoma.—An analysis of 258 cases of glaucoma treated by operation in Hirschberg's clinic is presented by F. MENDEL (Berl. klin. Woch., Jan. 27, 1902). In both acute and chronic inflammatory glaucoma the best results were achieved by iridectomy, successes being recorded in 82 and 77 per cent. of the cases respectively. This operation preserved what remained of sight at the time of operation, and in some instances vision was distinctly improved. Of the total number of cases analyzed (258), 216 were subjected to iridectomy. Twelve cases were treated by sclerotomy, and in 31 instances enucleation was necessary on account of the acute persistent pain. The cases classified as successfully treated by iridectomy were nearly all kept under observation for one or two years following operation. In a few instances the patients were still under observation after three, four, five, six and seven years. While in simple glaucoma successful results were obtained in about the same proportion of cases as in the inflammatory varieties, namely, 75 per cent., only one-half of the cases of secondary glaucoma showed good operative results.

X-ray Diagnosis of Foreign Bodies in Eye.—From a study of 61 cases in which the Roentgen rays were employed, the following conclusions are drawn by W. M. SWEET (Phil. Med. Jour., Feb. 8, 1902). He finds that this method affords the most certain means of detecting and locating foreign bodies in the eye and that this position should always be determined before magnet extraction is attempted. Early extraction is preferable and when the track of the body is through the cornea and lens, its position in the vitreous will indicate whether less damage will be done by removing the metal through the open entrance wound or through a new opening in the sclera close to the indicated position of the body. He believes also that in future more extended use will be made of the large magnet to extract pieces of steel from the vitreous than of the smaller form. Iron or steel which has remained in the eyeball until a fibrocellular covering envelops it cannot be dislodged by the magnet and must be extracted by forceps; this also applies to particles of copper or glass. The employment of normal salt solution to replace any vitreous lost resulted in several instances in eyeballs of good cosmetic appearance.

Tympanic Vertigo due to Obstruction in Eustachian Tube.—Cases of temporary impairment of hearing, tinnitus and history of frequent colds in the head, should have a thorough functional examination, when the lower tone limit will be found to be raised and the upper normal. Reduction of intratympanic pressure permits undue compression through the ossicles of the membranous labyrinth and consequent vertigo. These cases BRANDEGEE (Archives of Otology, Vol. xxx., No. 3) relieves by use of the gold electrodes of Duel applied in a careful manner and followed by catheterization. He cites three cases which in this way were relieved completely of their vertigo.

Mydriatics in Refraction and in Asthenopia.—While mydriatics are not necessary in all cases they are in very many cases. What these cases are DR. RISLEY (Ophthalmic Record, Jan., 1902) determines as follows: The emmetropic eye, he found in examination of large numbers of school children, gave best vision. Variations from emmetropia gave not only asthenopia, but also varying degrees of fundus oculi changes, all the result of eye-strain. Knowing this he claims that the prescribing of correcting glasses "is not the function of the optician, and should not be lightly assumed by the ophthalmic surgeon." The problem of prescribing the proper correcting glasses is not simple, but complex, the complexity being due to the requirements for comfortable binocular vision, *viz.*, harmonious relation between accommodation and convergence, excessive accommodation being required in hypermetropia and excessive convergence in myopia. There is a physiological range in most of these cases within which either one of these can be used independently, *i. e.*, the accommodation being "relaxed in the interest of single vision, or convergence abandoned in the interest of a clear image at the macula. . . The struggle to maintain binocular clear vision is the cause of the asthenopia and its associated pathological conditions." The author claims that a mydriatic is necessary in many of these cases to rest the function of the eye and restore a normal behavior of the fundus tissues before a healthy eye is obtained to judge of the exact quantity of the refractive correction needed. The fixed cramp of the converging muscles in hypermetropic cases gives false testimony even with the ophthalmometer unless the prolonged use of a cycloplegic has been tried in a large number of these cases. In myopia, also, the fundus changes can be relieved only by a cycloplegic, sufficient to justify the proper judgment of correction.

OBSTETRICS AND GYNECOLOGY.

Fever During the Puerperium.—Every case of fever during the puerperium should be regarded as septic, writes J. F. MORAN (Amer. Jour. Obstetrics, Feb., 1902), until this is positively excluded by a most careful and painstaking examination. Other conditions with fever which are sometimes overlooked are phthisis, malaria, typhoid, influenza, pneumonia, and the exanthemata. Any genital indication should be followed up by thorough bimanual and specular examination, and, if possible, by bacteriological and microscopical examination. One of the most common causes of fever is intestinal toxemia. Following labor there is a semiparesis of the bowel, favoring fermentation and decomposition therein, and the fever subsides after catharsis.

Cervical Metritis.—This is a very common condition and the forerunner, as a rule, of trouble higher up in the uterus. A. DOLERIS (La Gynéc., Dec. 15, 1901) concludes an article on this subject as follows: Caustics are efficacious in treating recent ectropions and endocervicitis of superficial character. The strong caustics are not preferable to a series of other topical applications, which are less energetic, more penetrating and very antiseptic, and which combined with glycerin act very rapidly and simply. Such are the essential oils, creosote, tincture of iodine, ichthyol, etc. In treating the scars due to ulceration or cervicitis, caustics of all kinds have only a temporary and doubtful action. Here the knife is very much better, because it removes the diseased tissues as widely and as deeply as is necessary.

Diabetes and Pregnancy.—Perhaps the most common, and at the same time the least disquieting, abnormality of the urine during gestation is glycosuria, or, rather, lactosuria, resulting from an absorption of milk-sugar from the functionating mammæ. On the other hand the coincidence of true diabetes and pregnancy is an event of extreme gravity, which demands immediate recognition and stringent treatment. The rarity of this latter condition, its importance from a diagnostic standpoint, and the difficulties in its treatment, all make the recent paper of DR. ERNST'S (Edin. Med. Jour., Feb., 1902) a contribution of great interest. Diabetes is commonest between the ages of

forty and sixty, a period of life which is well without the limits of the childbearing period; indeed, two-thirds of the cases do not begin until after the menopause. When the disease does occur in a woman of childbearing age, it usually suppresses menstruation and may even produce atrophy of the uterus. There is, however, a small percentage of these cases in which menstruation continues; such patients may become pregnant, and even repeatedly pregnant during the course of the disease. It is a well-known fact, however, that the severity of diabetes is very much greater in young subjects than in old, hence those diabetic women who are still capable of becoming pregnant usually exhibit a dangerous form of the disease. The pregnancy supervening upon this condition tends, as do all other forms of severe physical strain, to aggravate it and to hasten its progress. There is another possibility through which pregnancy and diabetes may become associated, namely, that a pregnant woman may become diabetic. In such cases the prognosis is much more favorable. The condition begins to improve within a few days or weeks after delivery, although the disease may recur in subsequent pregnancies. The diabetes may persist in mild form in the intervals between pregnancies and may disappear after the menopause, or it may become progressively worse and take on a grave aspect. The effects of the diabetes upon pregnancy and childbed are extremely deleterious. Intra-uterine death of the child, with its variable train of results, has occurred in about two-thirds of the cases. Hydramnios is a frequent complication. As regards the woman, the lying-in may proceed normally, whether the diabetes improve or not. On the other hand, death may supervene in the same manner as after operations or injuries in such cases, with the symptoms of coma and collapse. The obstetrical management of diabetes with pregnancy is evidently a very difficult problem. The author believes that the termination of the pregnancy, and that, too, at the earliest possible date, is the only course which can logically be followed. In the first place, the chances are two to one that the child will die *in utero*, hence its life is not of great account. But it is unwise passively to await this event, since the prolongation of the pregnancy materially weakens the chances of the mother. The liability to death from collapse after delivery is in direct ratio to the age of the fetus. For these reasons, the procedure advocated by the author seems wise and conservative.

Tubal Pregnancy.—In the eleventh century Albucasis described the first known case of extra-uterine pregnancy. In 1875 Dr. Thomas was the first to operate for the relief of the hemorrhage attending the rupture of a tubal sac by boldly thrusting a galvanocautery through the vaginal wall, removing the fetus and thoroughly cleansing the cavity with a carbolic-acid solution. Dr. Tait instituted as a routine practice the treatment of this condition surgically. T. GOODRICH (St. Paul Med. Jour., Feb., 1902) points out that nearly all pregnancies are probably extra-uterine in the beginning. Both the cilia in the Fallopian tube and the uterine cavity move toward the cervix and the spermatozoa work their way upward against this current. Spermatozoa are frequently found free in the peritoneal cavity. The cilia extend a short distance beyond the tubal opening and sweep the ovum into the tube as soon as it escapes from the follicle. The tube, however, is long and covered by delicate plications and deviations, so that the progress of the ovum is frequently impeded. Should any cause be sufficient to stop its progress, it may either die or become attached to the mucous membrane and develop. Factors in the causation of this condition, therefore, may be easily understood: (1) A congenital narrowing of the canal. (2) A large or unusually shaped ovum, hydramnios, twins, encephalocele, etc. All primary deformities in the ovum have been noted in ectopic gestation. (3) Disease of the Graafian follicle so altering the membrana granulosa as to make it more adhesive to the tube. (4) Excessive involution which has affected the tubes as well as the uterus. This is considered an etiological factor in isolated cases from the fact that the condition is much more rarely met with in multipara. (6) A tumor of the uterus or ovary distorting or closing the lumen of the tube. (7) Most authorities believe that inflammations of the appendages or pelvic structures are the casus belli in many cases, and the gonococcus is perhaps the most frequent invader. On the other hand, ectopic gestation seldom appears with double pus tubes, probably because the pus kills the spermatozoa. The treatment of these cases in their various phases is distinctly surgical. If surgical interference were withheld in all instances only five per cent. would recover, but in the hands of a skilled surgeon the mortality-rate is less than one per cent. The time for operation may be questioned. Shock from hemorrhage is seldom a contraindication. If the condition be recognized before rupture or if hemorrhage cease and a hemotocele form thorough preparations should be made for an aseptic operation. In the tubo-abdominal variety when the eighth month has passed, some advise the postponement of operation until pains begin. The author believes in such instances the mortality is least when celiotomy is deferred at least four or six weeks after false labor has taken place, thus allowing time for separation of the placenta, which can be more readily removed without alarming hemorrhage.

Faulty Uterine Growth.—The uterine ligaments play a considerable rôle in cases of faulty development of the uterus, according to D. H. CRAIG (Boston Med. & Surg. Jour., Feb. 13, 1902). The round ligament begins to be important in early fetal life. Its development proceeds *pari passu* with that of the uterus, tubes and ovaries. Any factor influencing the development of the uterus will influence also that of the round ligament. Experience has shown treatment of faulty prenatal uterine development to be futile. Cases of faulty growth (growth being defined as postnatal change) comprise two classes, as follows: (*a*) Inhibition or absence of growth; (*b*) tardy or delayed growth. In the former class the uterus maintains the infantile characteristics of long cervix, small body, anteflexion. In the latter a certain amount of growth has occurred, but at puberty growth has failed; the body of the uterus, however, is as long as or slightly longer than the cervix. In the case of infantile uterus prognosis is very doubtful; in the other class of cases treatment is of value, but must be continued for a period varying from nine months to two years or more. Treatment begun at fifteen to seventeen years of age promises better results than that which is begun after marriage—say at twenty-two years. An important factor in examination is the uterine probe. If the cervical canal in the least exceed that of the body a most unfavorable prognosis is the only one justifiable. Treatment must be general and local. Out-door life, gymnastics, Swedish movements, etc., are indicated. Iron seems to be valuable even when there is no anemia; presumably its action is due to its power to increase the blood supply to the pelvis. Active and not passive local congestion is required. The ordinary means of obtaining it are intracervical application of impure carbolic acid, negative galvanism, faradism, hot douches. In obstinate cases discission may be practised; it appears to induce growth, just as a laceration of the cer-

vix causes overgrowth. When growth begins in response to treatment, only to cease after a little while, the retrogression may be due to sagging of the uterus and resulting passive congestion. The indication is plainly to support the uterus from the start. For this purpose Craig recommends a small soft or hard rubber retroversion pessary; the smallest pessary that will do the work should be used.

THERAPEUTIC HINTS.

Pharyngitis and Acute Bronchitis.—In laryngitis and acute bronchitis, Liègeois prescribes the following:

℞ Sodii benzoat.....gm. 4.0 (ʒi)
Tinct. aconit.....c.c. 1.20 (ɱxx)
Aq. laurocerasi..... 4.0 (ʒi)
Syr. tolutani.
Syr. codeinæ.
Aquæ .....aa. 60.0 (ʒij)

M. Sig. To be taken in the twenty-four hours. For pharyngitis he gives large doses of sodium benzoate.

Infantile Syphilis.—Attempting to medicate the newly-born by mercurializing the mother, or goat or cow which is supplying milk to the infant, is useless, writes H. de Rothschild (Le Progrès Médical, Dec. 7, 1901). By the alimentary tract one may give Van Swieten's solution in milk in doses of 20 or 30 drops a day during the first month and 40 to 100 during the second, third and fourth months. The solution is as follows:

℞ Mercuric bichlor. corros..... 1.0
Alcohol 100.0
Aquæ 1000.0

Twenty drops would be equivalent to gm. 0.0025 (gr. 1/26) of the mercury salt. The protiodide, in doses of gm. 0.01 (gr. ⅙) a day, may be substituted for the bichloride. The cutaneous method, however, is the surest and most prompt. Five minutes' daily friction may be made with gm. 1.0-2.0 (gr. xv-xxx) of mercurial ointment, changing the site of application each day to avoid irritation of the skin. Have the part well washed with soap and hot water before the rubbing, and give the child a bath every second day. An excellent method of applying mercury is by the sublimate bath administered once or twice a day, each bath containing gm. 1.0-3.0 (gr. xv.-xlv.) of mercuric bichloride.

Vaginismus.—The general treatment consists of avoidance of intercourse, change of air, sea-bathing, exercise, and warm alkaline baths of soda and starch, using a bath speculum in the vagina. A stimulating diet should be avoided, and bromides with valerian or valerianates administered. The local treatment may consist, first, of warm vaginal washes of bichloride of mercury, 1 in 5,000, tincture of opium, 1 in 120, chloral, gm. 1.0 to 2.0 in 500 c.c. (gr. xv.-xxx in Oi), liquor plumbi subacetatis, 1 in 240, or tincture of calendula, 1 in 20; second, of suppositories of cocaine, gm. 0.12 (gr. ij), morphine, gm. 0.06 (gr. i), extract of belladonna, gm. 0.12 (gr. ij), extract of hyoscyamus, gm. 0.7 (gr. x.), or iodoform, gm. 0.35 (gr. v.); third, of lanolated creams of cocaine, 2 to 4 per cent., extract of belladonna, 2 per cent., morphine, 1 per cent., atropine, gm. 0.12 in 30.0 (gr. ij-ʒi), iodoform disguised with coumarin, vasol, iodine or ichthyol. The warm vaginal douche, with alkaline, sedative or astringent lotions added, may be used night and morning. Medicated glycerin tampons or a vaginal dilator may be worn at night. Direct application to the parts of lunar caustic, carbolic acid, solution of silver nitrate or cocaine may be made. If these means fail, operative dilatation must be resorted to.

Lumbar Puncture.—Of sixty lumbar punctures practised by A. Chipault (Le Médecine Moderne, Dec. 25, 1901) for therapeutic effect, fluid was not obtained in nine; of the others cure resulted in eleven cases, improvement in fourteen, and in the rest the results were negative. The cases cured were serous hypersecretion in congenital hydrocephalus, coma in an old syphilitic, grippe, meningitis, choreiform movements, specific meningomyelitis, septic meningitis, cranial traumatism and vertebral traumatism. The improved cases were two of hydrocephalus, two of infantile cerebellar tumors, pneumococcus meningitis, five of tuberculous meningitis, two of epilepsy, uremia with profound torpor, and rheumatism with rachialgia. In all these cases except the case of rheumatism, the improvement was only temporary. The cases with negative results were nine cases of hydrocephalus, four of tumors, three of tuberculous meningitis, one of cerebrospinal meningitis, three of epilepsy, four of general paralysis, blindness with papillary edema, and vertebral fracture.

Tuberculosis.—At a clinic given by Dr. J. E. Stubbert of the Loomis Sanitarium (Post Graduate, Nov., 1901), he advised special care of the alimentary canal and the blood. Chronic gastritis and dilatation of the stomach are very common, but one must not be misled by a temporary upsetting of the stomach from cough syrups, creosote, etc. The treatment is, first, lavage two or three times a week, and, second, the Einhorn electrode. The diet at first should be liquid or semisolid. Secondary anemia is the common blood condition and is most satisfactorily treated by arsenic and iron. Blaud's pills, chloride of iron, peptomangan, Fowler's solution, arsenauro and arseniated hemaboloids are of value. Static electricity is another good general tonic. For the cough do not give sweet vehicles and avoid morphine if possible. Two or three doses a day of codeine, gm. 0.015 (gr. ¼), or heroin, gm. 0.005 (gr. 1/12), will gradually bring the cough under control. Of inhalers the Underwood hot-air inspirator, used once or twice a day at 300° to 400° F., has its advantages. The following are good solutions to use with it:

℞ Ol. camphor.....gtt. clx
Terebene.
Eucalyptol .....aa. ad 30.0 (ʒi)
Dose: Two to ten drops.

℞ Creosoti .....8.0 in 30 c.c. (ʒij in ʒi)
Thymol .....0.25 in 30 c.c. (gr. iv. in ʒi)
Eucalyptol.
Ol. pini sylvestris.
Ol. gaultheriæ.
Ol. menth. pip.
Acidi benzoici.
Dose: Two to eight drops.

℞ Tinct. hyoscyami .....gtt. L in 30 c.c. (ʒi)
Tinct. iodi.
Ol. pini sylvestris.
Menthol.
Alcohol.
Eucalyptol.
Dose: Five to ten drops.

But the multinebulizer is much better for general use. Solutions adapted to it are:

℞ Menthol.
Camphor .....aa. gm. 1.0 (gr. xv.)
Albolene..... .....ad. 30.0 (ʒi)

℞ Creosote .....c.c. 4.0 (ʒi)
Albolene .....ad 30.0 (ʒi)

℞ Alcohol, 75 per cent.
Glycerin.

For two or three hours after the use of either of these inhalers the breath gives the odor of the drug used, showing that the bronchial mucous membrane must have been tolerably well saturated.

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SOME NEW PHYSIOLOGY.

Not all of the revolutionary and far-reaching advances in biological science are heralded as such by their promoters, for some grow into their importance almost imperceptibly, yet very rapidly, the labor of so many different minds and hands that no one of them can say, "This new doctrine is my own." Of such nature is the development, still doubtless only beginning, of the theory of ionic dissociation and its new hypothesis of life, with all its varied promise to the physiologist, the therapeutist, the bacteriologist, the pathologist, and the surgeon. This new movement is one more example of how important truth, about to become clear, hovers, as it were, in the very atmosphere around the body of interested researchers, however widely scattered spatially, its component parts issuing one by one from the minds of many such, and then uniting quickly to form a vast new star to light a world of doubt.

One thoroughly familiar with the American, English, and German physiological literature of the last five years will recall articles reporting the demonstration of certain facts and principles apparently as unrelated as they are various. One of these proved that the hearts of animals high in the zoölogical scale, if properly cared for, will continue their normal rhythmic beating long after all the nerves connected with them have been severed; this was a surprising thing, for it demonstrated that, whatever nervous influences may do, they do not cause or even occasion muscular contraction. Another research proved that mammalian hearts, even when taken out and isolated completely, would beat for hours when provided with a proper nutrient solution irrigated through them, this nutrient solution being blood serum. Another showed the absolute necessity of certain inorganic salts in the nutrient solution for the normal acting of protoplasm, in particular of muscle and of nerve. The dependence of the mysterious process of blood coagulation on the salts of calcium became certain at about the same time. Meanwhile, another experimenter was making interesting studies on the nature of colloids, and had worked out to demonstration in what ways an electric current causes the gellation or coagulation of hydrosols into hydrogels—of which class protoplasm is a member—and physics had added one more and a large element to the understanding of what was once termed "vital force." Still another research discovered and demonstrated that the normal rhythmic movements of protoplasm under abnormal experimental conditions were possible only in electrolytes, that is, in solutions capable of conducting appreciably an electric current whether galvanic or static in nature. Now then, by this important observation there came into adaptation to physiology a doctrine well known for many years to the physicist and the chemist, namely, the theory of electrolytic dissociation and the underlying doctrine of the ions.

This, then, was the rational conclusion to this complicated but straightforward series of proven propositions: the movements in and of living protoplasm take place apparently by means of ions, the electricity-bearing portions into which molecules break down when in solution, and the energizing principle of living protoplasm at last appears in very truth to be electricity. This proposition every physiologist has long had in mind inevitably as he saw measured in his capillary electrometer the "action current" in the beating frog's heart and the electric current known as the "negative variation" which may be conducted away from the injured nerve or muscle or gland or eye of any recently-killed animal. It has, indeed, been for a century the natural presumption to all familiar with the phenomena of the nervous system, but authority had by its denial (as so often) made it doubtful as a scientific

proposition, concealing it beneath the generally-adopted thermodynamic hypothesis. Electrical phenomena in the lives of many sorts of animals and even of plants are so numerous and so well known that they need no suggestion here. At last, with the cellular methods of the twentieth-century biology, the electrical basis of protoplasmic energy bids fair to be established.

Supposing now, for the sake of explanatory argument, that the inherent energy of living tissues is indeed, for the present at least, really classifiable as electric, what then is this doctrine of ionic dissociation on which the supposition rests? What, too, is the probable practical outcome of the theory in the directions for which the medical profession in particular has its being, in the alleviation of animal disease and pain? What is all this to medicine as an art, inseparable always from medical science? Thus far in the development of this new knowledge the practical bearings seem to be in relation only with the ionic doctrine and not much with its important corollary that the motive power of life is essentially electrical. What then, very concisely, is the theory of ionic dissociation, biologically applied? It is all too new as yet for important practical results, and a widespread interest in and acquaintance with the theory must precede the more particular researches.

Atoms and molecules long since have become to the student of chemistry and of physics objects as real as chairs and mortgages—one believes in them because a multitude of various facts and theory all point conclusively to their existence, and quite refuse to be explained by any other supposition known. We believe in atoms and in molecules, in other words, because our reason bids us inevitably to do so. Just as universally, without a doubt, will the students and scientists of the next ten years believe in ions and in their laws, and will discuss them and experiment upon them as they do with bacteria or leucocytes. In the uttermost of its simplicity, then, the ionic doctrine may be given in syllabus as follows: The molecules of salts, acids, and bases when they are dissolved in a liquid break up into ions, this solution being then called an electrolyte, for it will conduct a current of electricity. The liquids which have not the property of dissociating molecules into ions cannot conduct an electric current, and liquids which have the property are non-conductors unless ions are present in them to serve as bearers of the electrons or electric changes (for example, 1 c.c. of the purest water ever prepared was found to have a resistance to a galvanic current equal to 25,000,000 miles of copper wire 1 mm. in diameter). According to Arrhenius, the conductability of an electrolyte is proportional, for a constant difference of potential, to (1) the number of ions, that is, to the number of dissociated units, in the solution; (2) to the relative electric charge of these ions, and (3) to the speed of the ions. The proportion of the dissolved molecules which break up or dissociate into ions depends, within limits, on the degree of the dilution of the solution; a certain definite dilution, however (distinct for each solvent and for each dissolved substance), dissociates completely all the molecules, and further dilution merely separates the ions further from each other. Water is the best dissociator of molecules into ions; formic acid appears to be the next best, dissociating three-fourths of the molecules dissolved; nitric acid comes next, perhaps, then methyl alcohol, dissociating one-half to two-thirds the molecules; ethyl alcohol is not so good a dissociator as methyl alcohol, while acetone, the ethereal salts, and the hydrocarbons come in order, the last having only feeble power in this direction. Organic compounds are much less dissociated than are inorganic salts, and the ions are more complex, and less understood at present. In the presence of static or galvanic electricity certain ions take on each a positive charge of electricity and are then termed cations while the other ions (of a molecule dissociating into only two ions) acquire negative charges or electrons and are termed anions. If the poles of a battery be introduced into an electrolyte, the cations or positive ions go to the cathode, which is the negative pole, and the anions or negative ions go to the pole which is positive and called the anode, according to the universal law of electrical attraction and repulsion. Ions may be single atoms or groups of atoms; cations are more apt to be single atoms than are anions. The cation of all acids is the hydrogen; the anion then varies with the acid (*e.g.*, NO_3, SO_4, CO_3). The anion of bases is the hydroxyl group (OH); the cation varies with the base. In the case of salts, both the anions and cations vary with the salt, depending on the acid and base which had combined to form the salt. All atoms have either the same capacity for electricity or a simple multiple of the capacity of univalent atoms, that is, a bivalent atom or ion will carry twice as much electricity as an univalent ion, a trivalent ion three times as much, etc., which is "Faraday's law." The capacity for thermal energy is the same for all atoms.) Ions actually move through

the electrolyte, and not merely transfer their electrons; with a moderate strength of current Kohlrausch calculated that the velocity of a hydrogen ion was 0.0032 c.m. per second, most other ions moving much more slowly. The amount of electricity necessary to charge a liter of an electrolyte containing dissolved as many grams of a univalent metal as there are units in its molecular weight ("its electrochemical equivalent") is for all substances studied 96,537 coulombs—a very considerable charge for every ion; yet a bivalent ion would carry twice as much, a trivalent ion three times as much, and so on up to the octavalent ion, which is the highest valence known. (From this it appears what a very large amount of energy certain ions may carry, and the answer to several problems is herein suggested. Whether or not an ion is a cation or an anion is a relative matter, for a cation may become an anion in a complex salt when some other element is present which is stronger electrically than itself. An ion having the same chemical composition may carry different electrons under different conditions, *e.g.*, of origin.

These concise statements bearing on the ionic theory (taken mostly from the books of Prof. H. C. Jones and from Hollard) are intended to convey the chief principles of the matter, which is obviously not at all difficult to understand. Works on the theory are now accessible to any student of medical science who would know more systematically as to the physical chemistry of this now important doctrine. Next, it will be interesting to review briefly some of the actual medical knowledge based on this theory and derived through its application to these doubtful problems of physiology and therapeutics.

In the first place, it must be obvious that protoplasm (constituting of course all the tissues of a living body) is an electrolyte of the most perfect sort, it being practically a watery solution of considerable dilution of various salts, acids, and probably bases. Sodium chloride is especially important among the salts dissolved in the protoplasm, its ions being the univalent positive sodium and the univalent negative chlorine. The bivalent negative group CO_3 is also conspicuous, while in the blood plasma the univalent cations sodium and potassium and the bivalent cations (positive) calcium and magnesium and the univalent anions chlorine, hydroxyl, and HCO_3, and the bivalent anions HPO_4 and SO_4 are especially abundant. Each of these, and numberless other sorts, of ions is capable of carrying a constant charge of electricity proportional in each case to its valency in chemical combination; each, too, is capable of instantly overcoming the electrical nature, positive or negative, of any ion with which it comes into relation. The nature, number, and location of these ions depend on chemical metabolism in the cell, which of course is in turn dependent on the composition of the blood, which is likewise subject to the conditions imposed by the quality, quantity, absorption, and digestion of the food of the animal. The metabolism in the cell, consequence of the ingested food, liberates energy certainly in the form known as heat, but quite as certainly, according to this theory, the motor energy of the body is that of the ions powerfully and changingly charged with electricity, and continually passing to and fro, loading and unloading their work—performing charges of electricity. As already hinted W. B. Hardy has shown that protoplasm may be considered a reversible hydrosol or colloid, consisting of particles in suspension in water containing many dissolved salts and probably acids and bases. These particles appear to be aggregations of from 1,000 to 10,000 molecules, each having around it probably a double layer of ions heavily charged with opposite electricities. The proteid molecule especially is very large and the particles correspondingly labile. It is the repulsion between the particles which perhaps prevents their precipitation. Here, then, is a condition of equilibrium easily disturbed, especially since the particles are made up of molecules so large and unstable as those of muscle and nerve and epithelium, and this disturbance means a powerful discharge of energy. Every "particle" of the hydrosol protoplasm is then practically, according to this hypothesis, a minute but relatively potent Leyden jar charged with static electricity and discharged by the accession of ions having a sign opposite to that of the internal of the two layers about the "particles:" this sign appears to be usually negative. This is the physics at the basis of many protoplasmic changes and effects according to this hypothesis, and so strong is the evidence that the probability of its truth is considerable.

One more precise development from this combination of new ideas on protoplasm and the ionic theory has been worked out and in outline set forth by Dr. Albert P. Mathews. Working with the methods of the pioneer Jacques Loeb, he has probably developed and announced the essentials of the nature of the nervous impulse, one of the most interesting puzzles in all physiology. This research has been printed only in abstract and in a brief article in the *Century* for March,

the latter of which we may summarize as follows: When an electrolyte stimulates a nerve, *e.g.*, the sciatic of a frog, placed in it, it does so by withdrawing part of the water in the neural protoplasm. In such electrolytes it is not the positive ions (cations) which stimulate, but the anions or negative ions—for instance, the chlorine ion dissociated from the sodium ion in the case of normal saline solutions. It appears however that it is not strictly the ions themselves which stimulate the nerve, but rather the electrons which the ions carry; it seems to be electrical energy and not merely chemical energy by which nervous tissue transmits its impulse, although, thinks the author, these two are probably identical in reality, all chemical affinity being probably a phase of electrical attraction. The positive ions or cations tend to destroy irritability, inhibit action, the effect being roughly proportional to their valence or the number of electrons which they bear. We may therefore counterbalance the inhibitory influence of the cations by supplying anions or negative ions of sufficient charge or power, and thus produce stimulation of the neural protoplasm. This stimulation of the nerve consists probably in the partial precipitation or gellation of the colloid, or reversible hydrosol, which all tissue is (as already noted). This progressive precipitation or clouding may in some organisms be seen with the eyes, and was actually observed and described many years ago by Darwin (that wonderful observer!) as the stimulating wave slowly passed through a tentacle of Drosera. The nervous impulse consists, then, in the passage of the colloids of the nerve toward or to gellation, a conclusion, as Mathews states, simultaneously reached in regard to muscle by Loeb. "The colloidal particles are positively charged. Those charges induce in the water about each particle negative charges, the number of negative charges being proportional to the surface of the particles. Now, when two adjacent particles are thrown together mechanically (mechanical stimulation) or by heat or in any other way, they coalesce, and the surface of the coalesced particles is smaller than the sum of the surfaces in the separate particles. There is a sudden diminution in the number of positive charges holding the negative charges. A certain number of the latter are at once set free. These immediately precipitate the next layer of colloids. By the coalescence of these particles, negative charges are again liberated and the nerve impulse is thus propagated. The speed of its propagation is problably connected with the minute diameter of the axis cylinder process, which makes the movement take place in one direction. If we prevent precipitation we can stop the nerve impulse and the negative variation also. Thus, anesthetics probably prevent conduction in nerves by dissolving to some degree the fatty substances conspicuous in nervous tissue, thus preventing the progressive gellation which conduction requires.

Dr. Jacques Loeb in his last published article (*American Journal of Physiology*, February, VI., 6, p. 411) similarly works out some of the applications of the new ideas to toxins and antitoxins. Already he had suggested and studied the probable cause of the action of muscle, as already noted. Starting with the now familiar notions concerning the probable structure of protoplasm, Loeb maintains with much good evidence behind him that toxic and antitoxic effects may be due to the various alterations in the viscosity of the protoplasm making up living tissue. He considers the process of cell division one of the phenomena of protoplasmic streaming, and it is obvious that oftentimes the action of toxins and antitoxins may be directly dependent on division of cells. Whatever, then, disturbs the streaming power of protoplasm will interfere with toxins and antitoxins, for to alter the normal viscosity of a colloid is of course to disturb this reproductive power. Supposing, for example, a toxin to be dependent for its effects in the body on the activity of a large number of monovalent anions, their evil influence would be easily controlled by the introduction of even a small number of bivalent cations, since bivalent anions have double the power that univalent ions have; and employing the ions of much higher valence (many of the most violent poisons are such) the effect would be still more practicable owing to the smaller amount of the substance required. Such results are already demonstrated for low organisms in the laboratory; it remains to apply the principle to the massed cells of more highly developed animals.

So as concerns antiseptics, enlightening conceptions, explanatory if not prophetic, are not lacking. The reason that salicylic and picric acids, *e.g.*, are so destructive to low forms of life is that they are easily dissociated in the tissue electrolytes and thus liberate a large proportion of hydrogen cations, which are preëminently poisonous, for reasons already suggested. Similarly for mercuric bichloride, the mercury cations are very poisonous, while the copper in its solutions is nearly as effective. Metallic salts in general disinfect, that is, kill, not only in proportion to

their concentration, but also according to the special properties of the salt and electrolyte concerned. The bactericidal power depends both on the metalic cation and the anion and on the proportion of undissociated molecules. When the salt is a complex one the metal may be then only a part of a compound ion and so it may act much differently from what it would alone. An example is the potassium of potassium ferricyanide. Ions of high valence are the most strongly disinfectant, bivalent less so, and univalent ions least, other qualities being similar; for example, fluorine, bromine, and chlorine are active in this respect in the order given, the order of their descending valences. The effects toward disinfection of salts with a univalent cation are due to the negative electrons of their anions. Loeb also demonstrated that for muscle the relative toxicity may be proportional to the migration-velocity of the ions.

Such are, in merest outline, the methods by which some of the results already attained by this new sort of knowledge have been secured. The future will reveal their value, whatever it be, to science and to mankind. The present line of research has evidently but just begun, and has apparently not yet reached what one may hope will prove the most practically useful field of all, the scientific preparation of drugs for the cure of human disease.

AN OPPORTUNITY.

It is a surprising bit of information, but none the less true, that at the present moment there is not a single bed in any hospital in New York City so endowed as to be free for the occupation of a trained nurse. So many well-to-do patients have appreciated and not failed to expresss their sense of gratitude for unselfish nursely devotion in serious illness that it seems almost incredible that some of them should not have been prompted to make arrangements so that nurses themselves may have the opportunity to benefit by the best care when they fall ill. As a rule, of course, nurses locate in the place where they have had their hospital training. These have a recourse in illness, but at times they move to another city or a change in hospital management makes their former training-school practically a strange institution and then they may well feel the need of hospital care without being able to obtain it as they should. This situation presents an opportunity for practical charity of the most benevolent kind that should not be neglected.

Perhaps more than anything else the institution of the trained nurse has in recent years reduced the death-rate from disease and lessened the sum total of human suffering. Like the physician himself, she is the butt of many jokes when people are well, but a precious source of consolation and an assurance against worry when there is sickness in the household. Her greatest mission has been the prevention of secondary illness in families by lifting the load of responsibility for the care of the sick that used to weigh so heavily, especially upon female relatives. Surely others should be mindful of her and provide for at least the removal of the burden of personal responsibility when, in her turn, she falls ill.

THE ANESTHETIC FOR CHILDREN.

The discussion on lymphatic enlargements in children and the problem of their removal under an anesthetic with the danger involved in the use of chloroform, especially in cases in which the lymphatic constitution exists, precipitated as an interesting side issue at the last meeting of the Section on Pediatrics of the New York Academy of Medicine the question as to what anesthetic it is safest to employ in children.

There is no doubt now that most of the deaths in chloroform narcosis, in children at least, occur in individuals who are the subject of the lymphatic diathesis. The records of the children's clinic at Gratz for the last twenty years show that in every case of fatality with chloroform as an anesthetic the autopsy revealed the presence of the lymphatic hyperplasia which is the principal feature of the so-called *constitutio lymphatica.*

Reports from many other clinics are of the same general tenor. So much so that, as Dr. James Ewing said, the question among pathologists now is not, Does the lymphatic constitution predispose to death under chloroform? but rather, Does death under chloroform, in children at least, ever occur apart from the lymphatic constitution? Dr. Ewing's personal experience and the reports sent him of autopsies for deaths under chloroform show that in America the conclusions from the Gratz observations hold good. It seems probable, however, that chloroform does not enjoy the unenviable distinction of being the only general anesthetic that is liable to cause death in these subjects. Dr. Lartigau's report of experiences at Roosevelt Hospital shows that autopsies on children affected by the lymphatic constitution came after ether anesthesia as well.

There is no doubt, then, that in every case in

which it is determined to use general anesthesia in children a careful examination should be made for any and all signs of the existence of the lymphatic diathesis. The symptoms are not difficult of recognition. The presence of universal enlargement of the lymph-nodes, without direct inflammatory cause: hypertrophied tonsils and adenoid hyperplasia, with the tendencies to anemia, weakness of pulse and fluttering heart that may accompany insufficient development of the heart and large blood-vessels, all are pathognomonic of the lymphatic constitution. It is not necessary for all of these symptoms to be present, but a combination of some of them with perhaps the physical signs of a persistent thymus and a history of delicacy of health are sufficient to arouse suspicion. Death from chloroform is too serious a danger to be risked if the case is clearly not in the category of those free from constitutional lymphatic tendencies.

It is in operations upon parts requiring deep anesthesia that the special dangers of the administration of anesthetics develop. It is in these cases that fatalities are apt to occur. It is clear, then, that it is at least tempting fate to use general anesthesia for operations upon the tonsils or upon adenoid hypertrophy.

It seems probable, however, as stated by Dr. Jacobi, that in general chloroform is the most favorable anesthetic for children. Chloroform, when fatal, produces death through the heart and the heart of the child has proportionately to the body weight much more force and is less susceptible to inhibitory influences than in the adult. Moreover, children's hearts are seldom crippled by valvular cardiac disease. Children's respiratory apparatus and kidneys are even more susceptible than are those of adults to the evil effects of ether. Unless some cardiac lesion exist to contraindicate it, or unless there be suspicion of the existence of the lymphatic constitution with its almost invariable accompaniment—an undersized heart and aorta, chloroform is then the anesthetic of choice. Much of the present objection to the use of chloroform due to the occasional deaths that occur from it will disappear if careful search for any signs of the *constitutio lymphatica* be made before the anesthetic is administered.

ECHOES AND NEWS.

NEW YORK.

Red Cross Hospital Work.—The State Board of Charities has granted permission to incorporate to the New York Red Cross Hospital, the Associated Charities of Syracuse and the Emergency Hospital of Buffalo. It is likely that the new Red Cross Hospital will be erected on the West Side, in the vicinity of One Hundredth Street.

Compulsory Vaccination Bill.—The Compulsory Vaccination bill, which passed the Senate with no opposition, and is now in the Assembly, encountered opposition Monday last at the hands of Dr. Lewis, State Health Commissioner, and Dr. A. G. Root, who represented the New York State Medical Society. They told the Governor that the bill was too far-reaching in its provisions.

Compulsory Vaccination.—Health Commissioner Ernst J. Lederle, E. Eliot Harris, M.D., and Daniel Lewis, State Commissioner of Health, will meet early this week to consider the Compulsory Vaccination bill which is now before the Legislature. It is understood that the bill is not favored by the Health Commissioners, on the ground that many persons who would otherwise be vaccinated would refuse if it were made compulsory. From 25,000 to 35,000 vaccinations are now performed free each week by the Health Department.

Private Smallpox Hospital.—The crying need for such an institution seems to be meeting with some recognition. It is known that last year Mr. Carnegie offered $500,000 to the Minturn Hospital for a private pavilion. It is to be regretted that the way was not clear at that time to accept this generous offer and the city of New York is the poorer for a lack of initiative on the part of the Board of Managers. The deficiency should be remedied and that quickly.

Smallpox Hospital for The Bronx.—As amended by the Committee on Cities, the bill introduced by Senator Hennessey authorizing the construction of a $500,000 hospital in The Bronx will provide that borough with a building for the reception of smallpox cases. The bill was reported favorably to the Senate on Wednesday last, with amendments suggested by Dr. Lederle, Commissioner of the Health Department. It authorizes the Commissioners of the Sinking Fund to acquire a site in The Bronx at a cost of not more than $200,000, and to construct hospital buildings which may cost $300,000 more, "for the purpose of providing suitable accommodation for a reception hospital for persons injured or taken ill suddenly in the Borough of the Bronx and for cases of infectious or contagious diseases." Another amendment places the control of the hospital in the hands of the Board of Trustees of Bellevue and Allied Hospitals.

New State Charities Bill.—The bill carrying into operation the recommendations of Gov. Odell for a change in the system of management of State reformatory, charitable, and eleemosynary institutions has been drawn by the special committee appointed at the conference of legislators held in the Executive Chamber two weeks ago, and has been sent to New York City for consideration by the State Board of Charities at its meeting, to be held in that city. The measure is different in many respects from the bills which heretofore have been outlined by those who have been following this proposed legislation. It does not abolish the State Board of Charities nor the boards of managers of the institutions. The power of these bodies, however, are modified, and the control and management of the institutions are practically reposed in a central bureau to be located in this city. The prominent features of the measure are:

First.—The Governor of the State shall appoint a Superintendent, under whose direct supervision the institutions will be managed, and who will receive a salary of $4,000 per year, with $1,500 for expenses.

Second.—The Superintendent is empowered to appoint a superintendent and steward of each institution and to exercise a general supervision over them.

Third.—The Superintendent of each institution is vested with power to appoint the subordinates of the institutions and is held responsible for the manner in which the institution is conducted.

Fourth.—The steward is made the purchasing agent of the institution he is connected with, subject to regulations to be prescribed by the State Board of Charities.

Fifth.—A State Improvement Commission composed of the State Controller and the President of the State Board of Charities is created. This commission is to have the power to ratify or reject plans for new buildings and for improvements to institutions, and no new buildings or improvements can be recommended to the Legislature for appropriations without the consent of the State commission.

Sixth.—The power of estimate for supplies is taken from the State Controller and reposed in the Superintendent of Institutions. He is charged to inaugurate a system of purchases in bulk, such as now is in operation in the State hospitals for the insane.

Seventh.—Local Boards of Managers retain the power of visitation and inspection of the institutions which they have heretofore managed. They are to be subject to the control of the State Board of Charities, and may be called upon at any time to investigate complaints and to make reports on the condition and needs of the institution.

Eighth.—The State Board of Charities retains the power of visitation and inspection which it now exercises, under the Constitution and the State Charities law, but the power of passing on plans for the improvements to and betterment of the institutions is taken from it and reposed in the State Improvement Commission, composed of the Governor, the Controller, and the President of the State Board of Charities.

Ninth.—While the power of passing upon estimates for supplies is taken from the State Controller, he still retains the power of auditing all bills for the expenditure of public moneys in behalf of the institutions. It is like the State Lunacy Bill, most obnoxious in its main features, and it can only be regretted that the Governor should be so set on the passage of such measures as to jeopardize seriously his reputation for integrity.

Charities Bill Not Approved.—The State Board of Charities held a special meeting at the United Charities Building last week and discussed the new Charities bill drafted by Gov. Odell. There was considerable opposition to some of the important details of the bill. The portion giving the general superintendent power to appoint officers of the institutions was freely criticized, and it is understood that the bill must be materially changed before the board will give its approval. The final decision of the board was embodied in a set of resolutions which will be sent to the Governor on Monday. The board refused to make the resolutions public until after the Governor has seen them.

Protection Against Public Nuisances.—At the request of the Health Board the Police Department has detailed a force of plain-clothes men to travel on all surface lines, elevated roads, and ferries, on the lookout for persons who expectorate on the floor. By an arrangement with the City Magistrates all persons arrested are to be fined. Commissioner Lederle is determined to put a stop to the nuisance. The management of the Metropolitan Street Railroad informed Dr. Lederle that they would welcome all complaints against conductors who do not act on the suggestion of passengers, and caution offenders.

Protest Against Pure Food Bills.—The drug trade section of the New York Board of Trade and Transportation have forwarded a protest to the Senators at Albany against the Senate Bills Nos. 336 and 497, now pending, and known as the "Pure Food" Bills. The protest advocates the reference of the subject of pure food to a commission or to chemists identified with the department of the State. It is declared that to define adulterations requires the investigation of scientific men, and that hasty legislation would work injustice to consumer and producer alike. The comprehensive provisions of Senate Bill No. 336 would, in the judgment of the members of the drug trade section, open the way for endless litigation as a result of disagreements as to what constituted "harmful substances," and the discrimination against the two well-known preservative agents which are named in the bill is in itself without justification in the clinical experience with those chemicals, it is declared. Bill No. 497 is said to lack definiteness in its provisions as to what is injurious to health, and its enforcement would be based on opinions concerning which there is disagreement. The protest states that such legislation as the two bills represent is at variance with the laws of many other States, between which and New York State there is a liberal exchange of products. The protest is signed by John M. Peters, chairman of the committee on legislation; Jesse L. Hopkins, chairman of the drug trade section, and William F. McConnell.

New Ophthalmic Institute.—The New York Ophthalmic and Aural Institute, which now occupies the buildings 44 and 46 East Twelfth Street, will in the near future erect a handsome structure at the northwest corner of Central Park West and Sixty-fourth Street. Dr. Herman Knapp, who is the executive head of the institute, declined to say anything yesterday regarding plans for the improvement of the new site, and those members of the Trustees who could be reached, including Charles T. Barney, said that the plans were as yet in somewhat indefinite shape. The price paid for the plot has not been made public, but it may be assumed that it shows a substantial advance over $174,000, the figure at which the Century Realty Company acquired the property from the various owners a few months ago. The New York Ophthalmic and Aural Institute was organized in 1869. In connection with it there is maintained the School of Ophthalmology and Otology for the training of advanced medical students as eye and ear specialists. The institute's present quarters on Twelfth Street have long been inadequate, despite the fact that something over a year ago an adjoining house was deeded to it as a gift by Dr. Knapp and connected to the other buildings. Dr. Knapp will celebrate on March 17th his seventieth birthday, and in 1904 his fiftieth anniversary as a medical practitioner. He was professor of ophthalmology at Heidelberg from 1864 to 1868. Since 1868 he has practised his profession in this city.

Academy of Medicine.—The next regular meeting of the Section on Otology will be held Thursday, March 13th. Dr. Clarence John Blake of Boston will read a paper on "Tension Anomalies in the Sound Transmitting Apparatus of the Middle Ear."

The Section on Pediatrics will also meet Thursday, March 13th. Dr. T. Halsted Myers will read a paper on "Acute Joint Diseases of Infancy;" Dr. Henry Ling Taylor will present one on "Chronic Joint Diseases in Children."

The following have been recommended to resident fellowship: Drs. Charles Herman, John Leshure, Ernest Ellsworth Smith, Albert E. Sumner and James D. Voorhees. Dr. Willis Noble of Montclair was admitted to non-resident fellowship.

The following are some of the recent accessions to the Library: Allingham, W., & Allingham, H. W.,

Diseases of the Rectum; American Year-book of Medicine and Surgery, under the general editorial charge of G. M. Gould; Ball, J. B., Diseases of the Nose and Pharynx; Bruce, A., Ideal Health and How to Attain It; Crile, G. W., Problems Relating to Surgical Operations; Gerber, P. H., Atlas der Krankheiten der Nase; Hadley, W. J., Nursing: General, Medical and Surgical; Hanot, V., La Cirrhose hypertrophique avec Ictère chronique; Herter, C. A., Chemical Pathology; Horrocks, W. H., Bacteriological Examination of Water; Kocher, T., Hirnerschütterung, Hirndruck und chirurgische Eingriffe bei Hirnkrankheiten; Marshall, J. S., Operative Dentistry; Mercier, C. A., Psychology: Normal and Morbid; Munk, I., Physiologie; Reports of the Society for the Study of Disease in Children, Vol. I.; Roger, G. H., Les Maladies infectieuses; Schultze, F., Die Krankheiten der Hirnhäute und die Hydrocephalie; Simon, C. E., Clinical Diagnosis; Theobald, F. V., Culicidæ or Mosquitoes; mainly compiled from the collections received at the British Museum; Traité de Médecine, 2. éd. publiée sous la direction de MM. Bouchard et Brissaud; Transactions of the American Orthopedic Association; Transactions of the Colorado State Medical Society; Transactions of the Epidemiological Society of London; Transactions of the Ohio State Medical Society; Transactions of the Society of Anæsthetists, London; Weygandt, W., Psychiatrie; Wheeler, M., The Baby: His Care and Training; Whitla, W., Dictionary of Treatment; Williamson, R. T., Paralysis Agitans.

PHILADELPHIA.

To Appeal from Verdict of Court.—The Philadelphia County Medical Society at the meeting of February 26th appropriated the sum of $200 to aid in appealing the case of Dr. Righter, against whom a jury recently returned a verdict of $1,000 for alleged negligence in vaccination. Much indignation was manifested by members of the Society against the injustice of the verdict and individual members volunteered to subscribe enough to carry the case to the last resort if need be.

Symposium on Cholecystitis.—The meeting of the County Medical Society, February 26th, was devoted to a consideration of cholecystitis. Dr. Joseph McFarland spoke on the pathology, Dr. Joseph Sailer on the etiology and diagnosis, Dr. J. Chalmers Da Costa on the surgical diagnosis and treatment, and Dr. S. Solis Cohen on the medical treatment. Dr. Da Costa, in speaking of the cause of cholecystitis, stated that infecting organisms generally died before producing any effect on the gall-bladder when bile was running. Therefore infection and stagnation influence each other greatly as causative factors. The subjects of movable kidney and appendicitis were thoroughly considered under the question of diagnosis and the surgical treatment fully discussed, the policy of aggression being endorsed. Dr. Cohen stated that there was no specific treatment for cholecystitis, the general rule to be laid down being the securing of cleanliness, external and internal. This is brought about by diet, stimulants, hydrotherapy, etc. Sodium succinate in five-grain doses, four or five times daily, has given good results in some cases. In discussing the subject, Dr. J. C. Wilson said that cholecystitis presented one of three common conditions—catarrhal or purulent inflammation or contraction of the gall-bladder, with or without adhesions to the neighboring tissues. A point emphasized was that cholecystitis is rather frequent in the latter stages of typhoid fever. In a considerable proportion of such cases relapses occur, hence he has come to rather expect a relapse when cholecystitis develops. Dr. Wilson believes that surgical interference is advisable when from repeated attacks of colic, the presence of a tumor, etc., the diagnosis is reasonably sure. This is true whether the disease be accompanied by jaundice or not or whether gall-stones be present or absent. Early operation is comparatively easy and the danger of severe hemorrhage is much less.

Dr. Dawbarn Visits Philadelphia.—Dr. Robert H. M. Dawbarn of New York, whose essay recently won the Gross Prize in Surgery, visited this city during the past week. On the evening of February 25th, he addressed the students of Jefferson Medical College and later attended the annual banquet of the W. W. Keen Surgical Society. The following day he operated in Dr. Hearn's clinic at the Jefferson Hospital. Dr. Dawbarn spoke very briefly on the subject of excision of the carotids, giving a few of the details necessary for success in that method of treating certain malignant growths. Dr. Dawbarn is now making experimental injections into the internal maxillary and other small arteries, in conjunction with excision of the carotids, to prevent a return of the circulation.

Obituary.—Dr. Francis W. Lewis died March 2 of pneumonia, aged seventy-seven years. Dr. Lewis graduated from Jefferson College in 1846, served in a military hospital during the Civil War and was prominently connected with the Children's Hospital from the time it was founded.

New Dispensary to Be Opened.—An office under the management of Drs. Alice Norton, Gertrude Walker, and Kate Baldwin is to be opened in this city in the near future for the purpose of aiding a class of patients who cannot afford to pay the fees of regular physicians, but do not care to visit hospital clinics. The office is to be open during the evening and medical treatment will be given at very moderate prices. The project is supported by many physicians and also by the Pennsylvania Association of Women Workers.

Ferment-Chemistry of the Blood.—At the meeting of the Pathological Society February 27th Dr. Alfred C. Croftan spoke on "The Ferment-Chemistry of the Blood, with Particular Reference to General Metabolism." Dr. Croftan prefaced his remarks by stating that every physician must have asked himself why substances taken as food are oxidized in the body at its low temperature and not in the air. This is proven by the elimination of more oxygen than is inspired and is brought about by the various complex processes of the body included under the term metabolism. Metabolism is a process including two stages. The first stage is anaerobic and is carried on in the center of the cell by ferments secreted, not excreted, by the cell itself. The second stage is oxidative and is carried on at the periphery of the cell by ferments carried in the blood. An example of the action of these ferments is seen in the changing of albumose and peptones (formed from food) into serum albumin as soon as they have passed through the intestine in the soluble form into which they had been converted in the alimentary canal. By these ferments many complex substances, such as urea, may be formed without the presence of oxygen. Blood ferments are difficult of separation, being obtained only in extracts. Croftan believes that these ferments are carried by the leucocytes. An exceedingly interesting point was then discussed by Dr. Croftan, namely, the question of incubation. Experiments to determine this point are now under way by Dr. Croftan and although they are yet incomplete enough has been learned to justify a hypothetical explanation. Experiments show that there are enzymes formed in the body so akin to protoplasm as almost to seem alive. A certain amount of pepsin, for instance, will digest a certain amount of albumin. If now the pepsin is diluted and treated in a certain manner it will digest proportionately more al-

bumin than it did before. In this way it may be diluted many times, the results leading to the conclusion that pepsin is capable of regeneration and of assimilation. This leads to the hypothesis that minute amounts of toxin introduced into the body may increase during the incubation period. This is approaching closely the question of life itself. Further results will be awaited with interest.

Conditions for Psychiatric Research.—Dr. Adolf Meyer, Director of the Pathological Institute of the New York State Hospitals, by invitation delivered an address on the above subject at the February meeting of the Philadelphia Neurological Society. Dr. Meyer outlined in part the principles upon which he believes the Institute should be conducted for the benefit of psychiatry. He stated that only thirty to sixty per cent. of the cases conform to the text-book description of the disease in question. Exact records of cases are more necessary in this than in other fields. Most hospitals have an abundance of pathological anatomy reports, but are without a stock of reliable observations. No striking progress in psychiatry has been made except that obtained from well-observed patients. Physicians should be exceedingly careful to make a somatic and psychiatric correlation in the study of all mental cases. The proper place for such study is the hospital for mental diseases. To be true, all pathological material should be carefully worked up, but the psychiatrist should rely mainly on observations, aiming to replace the impressionist method by recorded cases. This means not only the so-called "interesting" cases, but all cases, features promising to be very helpful in future cases being especially elaborated. Examinations of the blood, urine, etc., have not produced any startling discoveries. These points have been arrived at by Dr. Meyer's experience before coming to his present position and they are to guide his reorganization of the Institute. The wards of hospitals must answer for a clinical institute until a special psychopathic hospital is erected. A clinical nucleus must be formed by studying the constitution of the blood, blood pressure, excreta, etc. Some of the departments in the institute will be the psychological, chemical, histological, toxicological, etc. In this way will be combined a knowledge of practical work with a knowledge of psychiatry, both of which are necessary for men working in hospitals for the insane. In this way also help in mastering the subject far beyond that given in medical schools will be made possible. Each hospital in the State can decide on its own policy and choose from the Institute the men best adapted to carry out that policy. A tangible evidence of the policy outlined will be a wider knowledge of insanity, its prevention, and cure. The State must do its part since it, as well as the medical schools, has not yet furnished sufficient opportunities for psychiatric research. The greater part of the material is monopolized by a few favored institutions. The State must aid the hospitals.

CHICAGO.

To Establish a Hospital.—At a meeting of the Alumnæ of the Woman's Medical School of the Northwestern University, held at the Sherman House, February 27th, it was decided to establish a hospital to perpetuate the memory of the school that has been sold by the Northwestern University. The new hospital will be entirely under the management of women physicians. All the different branches of medicine, including surgery, will be practised. Alumnæ of the school which has been sold will act as its physicians. No man can enter this hospital except as guest, janitor or patient. There will be an advisory board composed of women, also. This board will be formed largely of the Alumnæ, probably, who live outside of Chicago. A committee was appointed to carry forward the plans for the hospital, so that they will be in definite shape by the time the Alumnæ gather here in June. The hospital will afford a training-school for young women who desire to become professional nurses. The expenses during the first year will be light, probably not more than four thousand or five thousand dollars being laid out, it is said, in securing a building and equipment. The institution will probably be opened next fall. Eventually, it is planned to build a large hospital, probably rivaling any institution in Chicago. Among those who are taking an active part in the planning of the new hospital are Dr. Sarah Hackett Stevenson, Dr. Eliza H. Root, Dr. Effa V. Davis, and Dr. Mary J. Kearsley. About thirty members of the Alumnæ were present at the meeting.

Endows Consumptive's Home.—Charles L. Adams of Chicago has given $30,000 for the purpose of building a home in Denver, Colorado, for needy consumptives. The gift is in memory of his wife, whose name it will bear. Mr. Adams also offers $20,000 toward endowing and maintaining the plant, providing Rev. F. W. Oakes, who originated the plan, raises the endowment to $50,000.

Promotion of Dr. Bouffleur.—Dr. A. I. Bouffleur, of this city, who has been identified prominently with the medical and surgical department of the Chicago, Milwaukee and St. Paul Railroad, has been promoted to the position of chief surgeon, Dr. Solon Marks, the former chief surgeon of the road, having resigned.

For Better Clinical Work.—Efficiency of the County Hospital is to be increased by additions to the laboratory and pathological museum. An X-ray machine was installed two weeks ago, an official skiagrapher was appointed Monday, February 24th, and instruments have been received from Springfield incorporating the Cook County Clinical School. The incorporators were Warden Healy, President Hanberg, and Superintendent McLaren, and they and their successors in office will continue to direct and manage the school.

The Laboratory.—The nucleus of the laboratory was obtained last year through the contributions of County Commissioners, who turned over part of their salaries to the County because on the platform on which they had been elected they stood for a maximum salary of $3,000, the budget reduced the salary of $4,000 to $3,600 for each Commissioner, and the balance was donated. Since then contributions have been received from several sources, and the laboratory has grown beyond the control of the County Board. In order to provide suitable conditions for rapid growth, the County officials decided to incorporate the laboratory and museum into a school, the management of which is placed in the hands of the Warden, the President of the County Board and the Superintendent of Public Service.

Appointment of Dr. Neely.—Dr. John R. Neely has been appointed Medical Director of the County Institutions at Dunning by President Hanberg of the County Board. The selection was made upon the recommendation of Drs. Frank Billings and Hugh T. Patrick, of the subcommittee of the Advisory Commission, recently named by President Hanberg, to consider ways and means of improving the County Institutions. There will undoubtedly be a complete reorganization of the medical staff, also of the force of attendants and nurses. Dr. Neely was appointed because of his ripe experience and training, which, in addition to his recognized standing in the profession, will make him more valuable to the institutions at this time. To accept the medical directorship of Dunning, Dr. Neely will resign his connection with the City Health Department. He stands

high in the profession and takes with him to Dunning the endorsement of Chicago physicians.

Decision of the Supreme Court Regarding Healers.—The Supreme Court of Illinois has decided that magnetic healers and osteopaths must have a license to practise, in the case of the People *versus* George P. Gordon, an advertising healer of Rockford. It is said that Gordon was charged with practising medicine without a license, and, that after trial the Circuit Court directed the jury to find for the defendant. The Supreme Court reversed and remanded the case. The following is the text of the finding of the Court: "We all agree that the object of this (the statute) is to protect the sick and suffering and the community at large against the ignorant and unlearned, who hold themselves possessed of peculiar skill in the treatment of disease, and to prevent them from holding themselves out to the world as physicians and surgeons without having acquired any knowledge whatever of the human system or of the disease and ailments to which it is subject. Without some knowledge of the location and offices of the various nerves, muscles, and joints, the manipulation of those parts and the flexing of the limbs cannot be intelligently, if, indeed, safely, practised. Merely giving massage treatment or bathing a patient is different from advertising one's business or calling to be that of a doctor or physician, and, as such, to administer osteopathic treatment. The one probably falls within the profession of a trained nurse, while the other does not."

Resignation of Dr. Hammond.—It is said that Warden Healy of the Cook County Hospital has demanded the resignation of Dr. Herbert R. Hammond, a member of the attending staff, because he allowed an interne to perform an amputation under his personal supervision. This action the Warden construed as a violation of the rule prohibiting internes from performing operations in which an anesthetic is administered.

Scarlet Fever.—In contrasting the mortality from scarlet fever and smallpox during the past three years, the Department of Health shows that the mortality from the first was 924, while smallpox claimed only 7 deaths. The hope is expressed that in the foundation of the McCormick Memorial institution for infectious diseases, in which this infection is the first to be studied, that a disease, often more merciful in the life it takes than in the crippled survivor it spares, may finally be shorn of its terrors.

The West Side Hospital.—This hospital has just installed a model operating-room on its fifth floor for the especial use of its attending staff and the professors in the Chicago Clinical School. The room is excellently lighted by three side windows and a circular, fifteen-foot skylight provided with a revolving, adjustable screen, which secures the maximum north light. No hospital in Chicago is better equipped to furnish efficient service than is the West Side Hospital, and the following list of attending physicians and surgeons guarantees skill and experience of the highest grade: Surgeons, Drs. D. A. K. Steele, John B. Murphy, Thomas A. Davis, Charles Davison, E. H. Lee, and Alexander C. Wiener. Gynecologists, Drs. Henry P. Newman, George W. Newton, F. S. Hartman, and S. G. West. Oculist and Aurist, Dr. William L. Noble. Internal Medicine, Drs. Ralph Michel, and P. H. Conly.

CANADA.

Quebec College of Physicians and Surgeons.—The following physicians were recently elected to represent the different universities of the Province of Quebec on the College of Physicians and Surgeons of the Province: University of McGill, Drs. Craik and Lafleur; Laval University, Quebec, Drs. Simard and Catellier; Laval University, Montreal, Drs. E. P. Lachapelle and Demers; University of Bishop's College, Montreal, Drs. F. W. Campbell and J. H. McConnell.

Obituary.—The death is announced of Dr. David Roberge, at the age of thirty-two years, a prominent young French-Canadian practitioner of Montreal. Dr. Roberge was graduated from Laval University and for some time after graduation served as a house surgeon in the Notre Dame Hospital, Montreal. Death was caused by bronchopneumonia.

Dr. John Coventry, Medical Health Officer, Windsor, Ont., died on February 22d from pneumonia. He was a past president of the Ontario Medical Association.

The Medico-Chirurgical Society of Montreal.—This Society meets on the first and third Fridays of the month from October to June inclusive. It has recently acquired fine, new, commodious quarters in the West End Branch of the Bank of Montreal. There is a large assembly hall, comfortably furnished and capable of seating 125 persons. In addition there is a coat-room, a reading-room, a stock-room for the library, and a committee room. All is in charge of an attendant. The reading-room is supplied with the best medical journals and is open from 2 to 6 p.m. and from 8 to 11 p.m. It is proposed to admit non-resident practitioners to membership at a nominal fee.

Undergraduates' Medical Society of McGill University.—The new reading-room of this college society has been completed. It is supplied with the leading medical and scientific journals and the daily papers. The Society was organized in 1879 by Drs. Osler and Buller, and in 1886, in order that it would be properly supported financially, the Medical Faculty adopted the plan of charging each medical student $1.00 per annum along with his other fees. Since that time the finances of the Society have been in a very satisfactory condition. The classes of '01, '02, '03 and '04 have recently erected in a conspicuous place in the reading-room a tablet to the memories of two former students, Harold L. Borden, B.A., and A. Patrick O'Reilly, of Canning, N. S., and Hamilton, Ont., respectively, who lost their lives on the battlefields of South Africa in 1900.

Disease Among Immigrants.—Statements have recently been going through the public press, copied from the United States Bureau of Immigration report, to the effect that diseased immigrants gain an entry into that country through Canadian points. A discussion took place in the House of Commons at Ottawa the other day on a motion to increase the estimates in order to protect the Dominion from the introduction of smallpox by maintaining a constant and close quarantine at Sarnia, Windsor and Niagara. The Minister of Agriculture, under whose care quarantine is, took occasion to state that the diseases referred to were not such as could be quarantined and from what he knew of the matter he was satisfied that these reports in the press were entirely unfounded. He considered that the quarantine laws were more rigidly enforced in Canada than in the United States.

Dominion Registration.—The bill to provide for a Dominion Medical Council has been again introduced into the Canadian House of Commons by Dr. Thomas G. Roddick, M.P. There is very little change from that introduced last session, the change being with regard to the representation on the proposed Council which will now be on the basis of the medical population of each Province. Dr. Roddick has asked that when the measure has received its second reading it be referred to a special committee composed of members of Parliament who are physicians and two or three leading lawyers. When the Bill is before this special committee delegations of medical practitioners from every Prov-

ince of the Dominion will go to Ottawa, and a strong effort will be put forth to have the Bill passed by both Houses of Parliament.

Bill to Amend the Ontario Medical Act.—The Senate of Toronto University and the Medical Faculty thereof are not going to allow the proposed amendment to the Ontario Medical Act to pass without a determined effort to save the college representation. The Bill provides for the extinction of the College and Homeopathic representation on the Medical Council. A lengthy memorandum has been prepared on behalf of the Medical Faculty of the University and has been presented to the Government. In substance it is as follows: (1) It excludes from the body entrusted with fixing and determining the standard of medical education and prescribing the curriculum of studies those who, by reason of their avocation, as well as training and experience, are, if not best fitted, at least specially qualified for performing these duties. (2) It hands over to a practically irresponsible body the entire and absolute control of medical education and creates a close corporation or guild. (3) It imposes on the universities and colleges engaged in the work of medical education the obligation of following the curriculum of studies prescribed by the Council without having any voice in the framing of it. (4) It violates the compact entered into with the universities and teaching bodies by which they were given representation on the Council in consideration of their giving up the right to confer degrees or diplomas in medicine and surgery, entitling the possessor of them, without further examination, to practise upon obtaining his license or becoming registered.

Canadian Surgeons and the Medical (Extensions) Act of the English Parliament.—The Bill to amend the Medical Act of 1858 has been reintroduced into the British House of Commons by General Laurie, a member thereof, who was some years ago a member of the Canadian House of Commons from Nova Scotia. It has been suggested to General Laurie by the fact that the War Office has refused to allow colonially trained surgeons from Canada to attend professionally on other than Canadian troops on active service in South Africa, holding that it was contrary to the Medical Act of 1858. Leading surgeons of Canada, at the opening of the war, volunteered for service, but had to be refused and on this account General Laurie seeks to remove these disabilities. *The Lancet* does not consider that the chances of the amendment being discussed during the present session of the English Commons are very bright.

GENERAL.

Hospital Wing in Memory of Cornelius Vanderbilt.—Mrs. Cornelius Vanderbilt is about to have erected a wing to the Newport Hospital in memory of her late husband.

League Against Infant Mortality.—A society bearing this name has been formed in Paris for the purpose of combating in every possible way the excessive and avoidable mortality of early infancy. The following officers have been appointed: Messrs. T. Roussel, President; Paul Straus and P. Budin, Vice-Presidents; Josias and Variot, Secretaries; Henri de Rothschild, Treasurer.

Shelby County Medical Society.—A temporary organization of Shelby County (Tenn.) Medical Society was effected February 13th and was made permanent February 17th. The following officers were elected for the first year: J. H. Stolper, M.D., Ph.G., President; B. L. Branch, M.D., Vice-President; Geo. E. Pettey, M.D., Secretary; J. H. Liebkemann, M.D., Treasurer; John H. McKay, M.D., Reporter. This is the County in which the city of Memphis is situated; it contains about 400 physicians.

Hospital for Americans in Paris.—A splendid gift has been made for the benefit of the American colony in, and, of American visitors to, Paris by Edward Tuck, who has for many years resided in that city. Mr. Tuck has decided to defray the entire expense of establishing the free American hospital in Paris, announcement of which has already been made, and the ground for which has already been bought in the Passy Quarter. The hospital is to be named Franklin Hospital, and, besides being built on the latest American model, it will be managed entirely by American physicians and nurses. That the proposed hospital will fill a deeply-felt want is shown by the fact that the services of several American nurses who came recently have been in constant demand. Franklin Hospital will be situated in one of the most healthy parts of Paris. It will be surrounded by extensive grounds. Dr. Magnin, a well-known American physician in Paris, will be the director of the institution. Building will be begun in a few weeks, and it is expected that the hospital will be opened in 1904.

Treatise on Smallpox.—A very timely treatise on smallpox is announced for publication early in April by J. B. Lippincott Company. It is written by Dr. George Henry Fox, Professor of Dermatology in the College of Physicians and Surgeons, New York City, with the collaboration of Drs. S. Dana Hubbard, Sigmund Pollitzer, and John H. Huddleston, all of whom are officials of the Health Department of New York City and have had unusual opportunities for the study and treatment of this disease during the present epidemic. The work is to be in atlas form, similar to Fox's "Photographic Atlas of Skin Diseases" published by the same house. A strong feature of the work will be its illustrations, reproduced from recent photographs, the major portion of which will be so colored as to give a very faithful representation of typical cases of variola in the successive stages of the disease, also unusual phases of variola, vaccinia, varicella, and diseases with which smallpox is liable to be confounded. These illustrations number thirty-seven and will be grouped into ten colored plates, 9½ x 10¼ inches, and six black and white photographic plates. The names of Dr. Fox and his associates assure the excellence of the work, in which will be described the symptoms, course of the disease, characteristic points of diagnosis, and most approved methods of treatment.

Medical Society of Tennessee.—The Memphis meeting of the Society is only four weeks distant. Time begins to press. The preliminary program will be issued early in March and the Secretary is particularly desirous that it should be as full and attractive as possible. To this end all members are earnestly requested to contribute a paper and to send in title. The Committee of Arrangements is actively at work in the interest of the meeting and all who come are assured of a warm welcome from the Memphis profession. The Secretary calls attention to the fact that this will be the most important meeting the Society has held for many years. Constitutional amendments involving radical departures from the established policy will come up for final action, and every member should feel a personal responsibility in connection with the consideration and disposal of them. (See Transactions, 1901, pp. 22 and 25.) Attention is also again directed to the Prize Essay Contest, the conditions of which are fully set forth on pages 39 and 40 of the Transactions.

Country Life in America.—The March Country Life in America heralds the coming of spring, and, with added pages, offers a profusion of superb pictures relating to all sorts of wild and domestic life of the

woods, of the fields and of country places. This really magnificent periodical has made in the few months of its existence a lasting name for beauty and interest. As a recommendation by the doctor to his patient it is unsurpassed.

Validity of the Ionization Theory.—In a long review in *Nature* for January 30th, W. R. C. discusses the validity of the theory of ions now on its trial. A few paragraphs may be quoted here. It follows from the arguments adduced that there is no such connection between freezing-points and boiling-points of solutions as the theory demands. Often there is not even a qualitative agreement, let alone a quantitative one. In the realm of physiology the theory does not represent the facts. The heats of neutralization of acids and bases have been used as an argument in favor of ionization, but recent experiments have shown the theory to be not only inadequate, but unnecessary. Neither can the theory be brought into harmony with the law of mass-action; and this is one of the very strongest arguments against it. The ionization theory is at its best in explaining electrolysis, but even here, there are many phenomena that are left unexplained. For example, why are the deposits of silver from some solutions poorly adherent and from others dense and well adhering, the potential—difference and current—density being the same? The analogy between gases and solutions has clearly been pressed too far, and the fact that we are only reasoning by analogy has been forgotten. The solution of a substance and the expansion of a gas are really very different. A gas will expand *in vacua* or mix with any other gas, but a substance will not dissolve in every liquid. Here lies the chief difficulty of the theory. It neglects the all-important rôle of the solvent. It fails to emphasize the fact that solution takes place because of a mutual attraction between solute and solvent, and that this attraction is the essence of osmotic pressure, which is close related to, if not absolutely identical with, chemical affinity.

Distribution of Firm's Stock.—The firm of Parke, Davis & Co., manufacturing pharmacists of Detroit, has adopted the policy of other large corporations of encouraging its employees to become shareholders. This company proposes to issue 4,000 shares of its capital stock, and permit the oldest among its employees, especially those in important positions, as managers, superintendents and foreman, to purchase this new stock at $55 a share. The present market value of the stock is $70 a share, and face value, $25 a share. The company announces that it is not taking this action for philanthropic reasons, but because it considers it good business judgment to have its men in important positions interested in the profits of the business.

Tua-Tua for Leprosy.—Medical men are interested in the newspaper reports from Honolulu and Tahiti of successful results obtained in the treatment of leprosy from the active principle of the tua-tua shrub. The tua-tua's scientific name is *Jatrapha gossypifolia*, and it comes from Venezuela. Nearly three years ago the Department of Agriculture sent twenty-seven of the tua-tua plants to Dr. Carmichael, United States Marine-Hospital surgeon, then at Honolulu, but now in San Francisco. The plants were set out in the experiment station grounds in Honolulu, where they flourished, waxed green and produced many buds. With the plants came statements from Venezuela that leprosy had been successfully treated with the extract. The shrub is called in Venezuela *frailejan purgo*, on account of its purging qualities. Dr. C. E. Camp, assistant in the bacteriological laboratory of the Board of Health of Hawaii, has been experimenting on lepers in Honolulu ever since the receipt of the shrub. The direct effect of the medicine is to reduce the frightful swellings which disfigure the features of the lepers, and which distort their extremities. In Tahiti really wonderful advance toward the cure of leprosy has been achieved by the use of the shrub, but in Hawaii it has been difficult to induce the lepers to undergo the treatment. The use of the medicine is generally accompanied by severe colics, and the Kanakas will not submit to the pain, even though a promise is held out of a partial cure of their terrible affliction. The fact is that leprosy among the Hawaiians is not looked upon with the horror that it possesses for Americans and Europeans, and save for the isolation on Molokai, which leprosy entails upon its victims, the latter show little disposition to do anything to ameliorate their physical condition. The lepers are free to accept or refuse treatment, and cannot be forced to take the medicine. A Portuguese in Honolulu, who had leprosy, was given the tua-tua, and, according to Dr. Camp, shows absolutely no symptoms of the disease now.

Care of the Insane in Washington.—A deficiency appropriation of $35,000 is asked in a communication recently transmitted to the House by Secretary Shaw from Secretary Hitchcock for the support of the Government Hospital for the Insane for the present fiscal year. A statement by Dr. Richardson, superintendent of the hospital, which accompanies the request, states that the daily average attendance for the current year will exceed that of the year previous by about 134. The advanced price of many articles of food is also given as a reason why more money is needed. The fresh meat contract alone is increased $5,000 over last year. In addition to this it has been necessary to purchase 200 bedsteads, with the necessary bedding.

Obituary.—Dr. Elizabeth B. Wakeley died on Thursday at the residence of her son, Dr. William A. Wakeley, 420 South Main Street, Orange, N. J., where she was visiting. She had been a practising physician in New York State for more than thirty years. She was born in Connecticut seventy years ago, but had spent most of her life at Levanna, on Cayuga Lake, N. Y.

Dr. Edward Mott Moore, a prominent citizen of Rochester, N. Y., died March 3d at the age of eighty-eight years. He was born in Rahway, N. J., on July 15, 1814, of Quaker and Huguenot ancestry. After attending school at Flushing, Long Island, he was sent to the Rensselaer Institute at Troy and afterward came to Rochester, in 1828. He was graduated from the University of Pennsylvania in 1838, and from the Medical College at Woodstock, Vt., in 1854. He was known prominently in the work of the Red Cross Society of New York State, and as "The Father of the Parks" of Rochester.

Dr. Worthy Streator, a physician of Cleveland, died March 3d. He was the man after whom the city of Streator, Ill., was named. In early life Dr. Streator helped to build what is now a portion of the Erie Railroad. He was eighty-five years old.

Dr. Arthur T. Muzzy, of No. 100 East Fifty-seventh Street, New York, well-known as a specialist in diseases of the eye, ear and throat, died early Tuesday morning in the Presbyterian Hospital from heart disease. He was the son of the late Rev. Dr. Clarendon Vey Muzzy, a missionary to India, and was born fifty-one years ago in Madura, India. Dr. Muzzy has always been very active in the hospital work of New York and was especially devoted to the interests of the Charity Alumni Association.

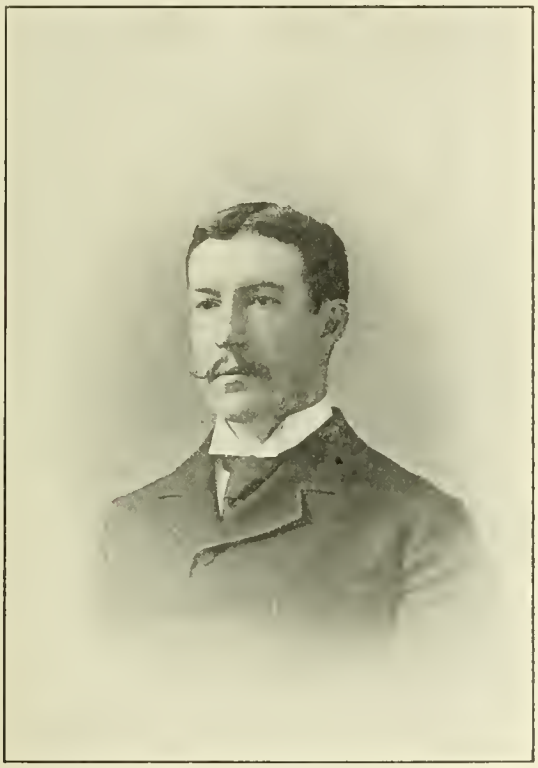
OBITUARY.

ERVIN ALDEN TUCKER, M.D.

The sudden death of Dr. Ervin Alden Tucker, from pneumonia, on March 3, removes from the profession one of the most able of the younger men of New York City. Although Dr. Tucker was but forty years of age, and had been in private practice as an obstetrician for only seven years, yet he was entering the first ranks in his specialty, and had become well-known as a consultant physician in New York and other cities.

His almost phenomenal success, and the rapid growth of his fame, were, however, the result of years of preparation, when with concentrated energy and singleness of purpose he devoted every faculty to his one interest and ambition.

Dr. Tucker was born Feb. 2, 1862, in Attleboro, Mass., where his early education was obtained. He



ERVIN ALDEN TUCKER, A.M., M.D.

was prepared for college in Moury and Goff's Classical School in Providence, R. I. At Amherst College, where he took the degree of B.S. in 1885 and M.A. in 1888, he laid the foundation for his scientific work, instead of pursuing his classical studies. An interval of two years passed before he began his medical studies, during which time he taught modern languages in Betts Academy in Stamford, Conn.

During the three years of his medical course at the College of Physicians and Surgeons, he was a marked man, and his unusual faculties and apparent inclination for the branch he chose, were noted by his professors. When he graduated in 1889, it was as one of the ten honor men, and a winner of the second Harsen prize. It is remembered, that when he received his honors, some one asked why young Tucker won such a prolonged round of cheers from his class-mates, and the reply of one of his fellow students was to the effect that his class had hoped that he would be a prize man because he had gone through the college on his own efforts.

After a six months' residence in the nursery and childs' hospital he went to Germany where he devoted all his time to the study of obstetrics under Olshausen, Winter, Dührssen and Winckel. He studied various methods of conducting lying-in hospitals, and came home ready for his chosen work.

In the Spring of 1890 his career really began, for he was then appointed resident physician in the Sloane Maternity Hospital. During the five years that he worked there he had the satisfaction of seeing the service increase from 400 to 900 confinements a year, and of seeing the Hospital grow, by reason of his interest and methods into the largest obstetrical hospital as well as the most fully equipped in the country.

Before Dr. Tucker left the Sloane Maternity Hospital he married Miss George Anna Crispell of Rondout, N. Y., and together, each with the interest of the hospital at heart, they helped the founder of that institution to carry it to the state of perfection.

When in 1895 he resigned to begin private practice in obstetrics, he was made Assistant Attendant to Sloane, and was shortly after appointed as one of the attendants to the Obstetric Division of the City Hospital on Blackwell's Island.

Dr. Tucker's practice increased with a rapidity that was startling. But there was hardly a young physician in the city who did not turn to him, considering him one of them, and yet as able as the most celebrated of the older men to help him in difficult cases.

He was a master of technic, and he had that swift sure judgment that comes with long experience and well thought out methods. His detail was perfect, and whether he was working in the wards, or bringing an heir to millions into the world, his work was performed in that same thorough, careful and successful way. To see him work was to realize that he was an artist of the highest scientific type.

CORRESPONDENCE.

OUR PARIS LETTER.

(From Our Special Correspondent.)

Paris, February 22, 1902.

PROFESSOR GILBERT NAMED PROFESSOR OF THERAPEUTICS—THE USE OF ELECTRICITY IN SPRAINS—ADULTERATION OF MILK IN PARIS—SERUM OF TRUNECEK.

Dr. Gilbert, one of the best known of the younger professors of the Faculty of Medicine, has just been named professor of therapeutics, a position which has been occupied several years by Professor Landouzy, who has acquired much fame on account of his discoveries in neurology. Dr. Landouzy, while occupying the chair of therapeutics, insisted on the distinction that existed between treating diseases and treating patients. He had a set of aphorisms to explain his ideas on therapeutics which were the following: Therapeutics as a science should always be clinical, pathogenic, physiological, opportunist; clinical as to its sources of information, pathogenic in its indications, physiological in the methods used, and lastly opportunist in its decisions. Professor Landouzy has been given the chair of clinical medicine, vacated by Professor Jaccoud, the author of the treatise of medicine which preceded that of Dieulafoy.

Drs. Charrier and Planet have called the attention of the French medical public to the advantages of the use of electricity in sprains. This treatment is hardly men-

tioned in most treatises on electrotherapeutics, though some English authors speak of it without, however, giving any clear indication of the method to be employed. Apostoli recommended using the faradic current with very rapid interruptions. The electrodes should be of carbon covered with chamois skin, and, while the positive tampon remains in one position, the negative one is moved all over the painful area. The results would seem to be surprising; after five minutes the patient is able to get up and walk, the pain having ceased for the time being. Two applications should be made daily, and the patient told to walk as soon as possible.

There has been of late quite a discussion not only among medical men, but also in the general public as to the milk supply of the City of Paris. The *Matin*, a prominent daily, started it by describing the various methods of milk adulteration, and asking for the establishment of a League for the Defense of Human Life, the members of which would be requested to contribute only one, two, or three francs. They could send samples of the milk they received to a special laboratory, where the milk would be analyzed. If the report was adverse, the seller would be prosecuted and the damages awarded would be handed over to the member who had given in the sample. It seems that the City of Paris uses 700,000 liters of milk daily; 200,000 liters are furnished by the dairies included in the metropolis, and 500,000 are brought from the country. The first-mentioned varieties would seem to be the best, as strict supervision is exercised in order to prevent the use of tuberculosis cows. Moreover, there is less chance of the milk being adulterated, as it can be bought directly. It is quite different with milk brought from the country, which is first collected by certain farmers and handed over to collectors, who send it to Paris, where it is distributed by other milkmen to the retailer. The milk is therefore handled by four different groups of men, who try to make as much profit as possible, so that milk, which costs in the country only nine to eleven centimes, is sold at forty centimes to a franc in Paris.

Still another serum has been placed upon the market and is being extensively advertised. It is called the serum of Trunecek and is supposed to produce most remarkable results in a variety of conditions. Two articles on this serum have appeared in the *Presse Médicale*, signed by a Dr. Leopold-Lévi, and prospectuses have been sent out by a well-known druggist in Paris. It is a mooted question whether this latter preparation will take on as well as cacodylate of soda and lecithine, which were the fashionable drugs last year.

Dr. Poirier, who is one of the best known operators in Paris, has just reported his first death from chloroform. The patient was an emaciated old woman suffering from cancer of the stomach. Some twenty-five minutes after the operation had been begun, the heart suddenly stopped beating. The writer of this letter happened to be in Dr. Poirier's service a little over a month ago, when he was examining this woman and trying a new apparatus for gastroscopy, when Dr. Poirier made the remark that he had never lost a patient from chloroform.

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held January 25, 1902.

Palmer C. Cole, M.D., Chairman *pro tem.*

Gangrene of Genitalia.—Dr. Ramon Guiteras reported the case of a young man, aged twenty-three, in his service at the City Hospital, who came under treatment suffering from an extremely raw and inflamed condition of his genitals. This inflammatory condition had lasted for some time and all the superficial skin of the testes and the lower part of the penis had sloughed away, the penis being uncovered from the corona to a point about half an inch from the pubis, the testes bare, drawn up against the opening of the external canal and covered with a whitish, sticky exudate. By a series of flaps of skin obtained from perineum and the adductor surfaces of the thighs, the genitalia were covered successfully after careful sterilization of the tissues. The plastic operation proved very satisfactory and the result enables the man to go about his occupation as before.. After the operation some details of the man's previous condition were obtained from himself and friends. He had been a laborer in a brickyard; and the first symptom of his ailment seems to have been an enormous swelling of the scrotum, which was very painful, tender and the size of a baby's head. The physician who was called in laid open the scrotum freely and found that, as the result of the pressure on the tissues, certain parts of the skin were already gangrenous. Charcoal poultices were applied freely and the tissues continued to slough for several weeks. It seems evident that the origin of the condition was probably an extravasation of urine into the scrotum. There is no history in the case of a catheter having been employed, but Dr. Guiteras has seen other cases in which this seemed to be the occasion for the gangrene. There is the possibility of severe trauma setting up such a condition, but there is no history of any accident in this case. Such gangrenous sloughing of tissues may occur rather readily in diabetic patients, and sometimes in tuberculous patients. One might think of a phagedenic process in such a case, but a phagedenic sore would not involve the cutaneous tissues alone, but would spread deeper and produce more serious consequences. It seems preferable always to do plastic work in covering up the testicles than to leave these organs to become covered by granulation tissues. Dr. Guiteras has seen the enlarged scrotum of patients suffering from elephantiasis submitted to surgical treatment. In these cases the affected tissues are simply dissected away and the testicles are allowed to become gradually covered by granulations. In these patients, however, adhesions are likely to form, the scar becomes painful and irritable, movement is interfered with and the genitals are held by cicatricial tissue as in a vise.

Unaccountable Asthma.—Dr. John H. Huddleston describes a case in which the patient suffered from what were presumably asthmatic attacks, until the end of the case revealed malignant disease as the basis of the symptoms. The patient was a man aged fifty-six years, a widower, by occupation a clerk, coming of a long-lived family, and without any tuberculous or malignant history. About twelve years ago, according to his own story, he suffered from locomotor ataxia; he was, however, cured of this condition by a nerve specialist in nine months. He had the habit of taking four or five whiskies a day, but could scarcely be said to be frequently under the influence of liquor. His symptoms consisted of asthmatic attacks with cough, more at night but continuing also during the day. There was prolonged expiration and some squeaking râles on inspiration. Each day he expectorated two to four ounces of frothy sputum. He experienced considerable dyspnea even after moderate exertion, and this dyspnea was marked not only during expiration, but during inspiration. He was put upon iodide of potassium, but the drug did not relieve his symptoms. Asthmatic cigarettes also failed to give him any relief. Morphine in doses of one-eighth of a grain was the best remedy and the most satisfactory during his asth-

matic attacks. After being under treatment for some weeks he complained of difficulty in swallowing. This, however, seemed to be mainly subjective, for when asked to do so in the physician's presence he was able to swallow various food substances without great inconvenience. He complained considerably of gas in his stomach and after awhile refused to take any but liquid food. This gave rise to some alarm and the diagnosis of the case seemed to lie between hysteria, nervous dyspepsia and an organic lesion of the esophagus. A consultant who was called in to see the case thought the patient might be suffering from an aneurism. There were, however, none of the ordinary physical signs of this condition. Two months after his taking to liquid food there was considerably more expectoration than before. The patient used to cough up from eight to ten ounces of frothy suptum during the twenty-four hours. As his symptoms continued to increase and his dyspnea was a source of great discomfort, while he was constantly losing in weight, another consultant was summoned.

Diagnosis and Autopsy.—Dr. Janeway found on examination of the patient an evidently fresh fracture of the eighth rib. No reason could be found for the existence of this fracture. There had been no trauma or accident of any kind. After careful examination Dr. Janeway gave the opinion that the patient was suffering from possible carcinoma of the esophagus. Nothing could be done for the relief of the symptoms, the dyspnea increased to orthopnea, and the patient died four days later. At the autopsy an ulcerating carcinoma of the esophagus was found, involving some four inches of the esophageal tube. There was no stricture of the esophagus in the neighborhood of the malignant growth. A finger could very easily be passed through it and the difficulty in swallowing was evidently a nervous reflex, rather than an actual mechanical obstruction. The carcinomatous growth had spread by contiguity to the larynx, and a papillary carcinoma about half an inch in diameter filled up the lumen of the larynx. There was at no time any external evidence of tumor and there seems to have been no way in which the presence of the growth could have been diagnosed with certainty during the life of the patient.

Cervical Cancer in Pregnancy.—Dr. Egbert H. Grandin reported a case of cancer of the cervix uteri in which the size and position of the malignant growth would seem to preclude the possibility of conception taking place. The patient was an Italian woman who came to the hospital suffering from constant hemorrhage. The entire vaginal portion of the cervix had disappeared and the uterine tissues seemed completely infiltrated with the malignant growth. The uterus was found large and movable and there seemed to be no involvement of parametric tissues. It was resolved, therefore, to do a complete hysterectomy by the abdominal route. The uterus was found to be distinctly enlarged and within its cavity there was a fetus of about five months. In such cases, that is, in cancerous involvement of the body of the uterus, hysterectomy is the surgical indication, and yet operation seems almost useless since there are always recurrences. Dr. Grandin does not think that he has ever seen a case in which recurrence did not take place after hysterectomy for cancer of the uterus.

Extra-Uterine Pregnancy Without Classical Symptoms.—Dr. Grandin gave the details of a case in which the patient suffered from extra-uterine pregnancy, though none of the classical symptoms set down in the text-books as characteristics of that condition were present. Careful taking of the history failed to elicit any account of hemorrhage after an interval of amenorrhea. The pain was not of the intense prostrating character that is usually spoken of, but was rather spasmodic and resembled colicky pains of the intestines. No portions of the decidua were passed. Menstruation had been regular except the last; this had occurred at the regular time, but there was less flow than usual. Normally it lasted about six days, but this time it persisted for only three. This is not an unusual symptom and must sometimes give rise to the suspicion of extra-uterine pregnancy. The amount of menstrual flow was very small. Examination showed the presence of a small uterus, with a mass lying free in front of it thought to be a hydrosalpinx, and operation was advised because the pains had become almost constant and were a source of great discomfort. It was not until beating vessels were recognized in the tumor at a subsequent examination, more than a week later, that extra-uterine pregnancy was diagnosed and the operation performed.

Pseudopregnancy.—Dr. Grandin was recently called in to see a woman who, it was supposed, was about to be confined. She presented an enlarged abdomen and enlarged breasts and the history showed the characteristic vomiting of pregnacy and continued amenorrhea for about the usual length of pregnancy. Examination, however, showed a hard cervix and a small uterus. Dr. Grandin gave an anesthetic, and under its influence the sphincters collapsed, the windy tumor of the stomach disappeared and the imaginary baby was delivered.

Imaginary Labor.—Dr. Brewer related the case of a woman supposed to be in labor, whom he had recently seen in a lying-in-hospital. She had had three children before and was suffering apparently from regular normal labor pains, which occurred about every five minutes. The cervix was found to be hard, however, the uterus was not enlarged and no fetal heart sounds could be heard. After a time the woman was persuaded that she was not in labor, her pains ceased and she left the hospital. Three days later she was brought in again in an ambulance, once more with characteristic labor pains, after having excited the sympathy of her neighbors at home. She turned up at another hospital for the third time within two weeks and seemed finally to have been convinced that the symptoms of labor were only imaginary. Dr. Brewer made it his business to follow up the case and inquired of her sister with regard to the condition of the patient. The sister assured him that the woman had been once more taken with labor pains and had been delivered of a healthy child, by a private physician. In order to make the records of the case complete he asked the name of the physician, whom he looked up but found that he had died several years previously.

Environment of Imaginary Pregnancy.—Dr. Grandin, in discussing Dr. Brewer's case, said that the patients who suffer from imaginary pregnancy usually occupy very definite environment; they are mainly widows who have every reason to fear that they may be pregnant and to whom memory serves as a stimulus for the repetition of the symptoms that occurred during former genuine pregnancies. Dr. Grandin has recently had two such cases and it was extremely difficult to persuade the patients that there was no pregnancy in progress. Occasionally these symptoms occur in elderly unmarried women, when, however, the symptoms are more anomalous and do not resemble the signs of ordinary pregnancy so closely. Frequently the only differential diagnosis possible must be made after a bimanual examination. As a rule, the examining finger comes in contact at once with a hard cervex and this is of itself sufficient to decide against the existence of pregnancy.

Pregnancy and Exstrophy of the Bladder.—Dr. A.

Palmer Dudley in commenting upon Dr. Grandin's case of pregnacy in a patient suffering from carcinoma of the cervex uteri and the consequent necessity for the spermatozoa to penetrate the foul, ulcerous mass, detailed a case in which there would seem to be even less possibility of pregnancy occurring. The patient suffered from stone in the bladder, which was removed with the forceps, causing an exstrophy of the bladder into the vagina. The orifices of both ureters could be seen in the vagina and there was a constant flow of urine from the parts. Usually spermatozoa are said to be affected very seriously by such acid secretions as urine, but in this case they succeeded in finding their way into the uterus and impregnated the ovum.

Phantom Tumors.—Dr. Dudley has recently seen two cases of characteristic phantom tumor. One of the patients was a young Irish woman, twenty-seven years of age, whom Dr. Dudley found noisily complaining of what seemed to be regular labor pains. As the cervex was hard and the uterus of normal size, Dr. Dudley at once declared that she was not pregnant and not in labor. The result of this surprising declaration to the patient was that she got out of bed very quickly and Dr. Dudley got out of the house very rapidly. Subsequent developments, however, proved not only to the friends of the patient, but even to the patient herself that she had not been pregnant. A certain number of these cases of imaginary pregnacy are due, in Dr. Dudley's opinion, to a sudden large accumulation of fat in the abdominal wall and cavity of certain women. This is a special large-celled fat, growing with particular rapidity, and when the patient walks it produces a certain joggling motion in the abdominal wall that seems to be the ground for the imaginary idea of fetal movements. Of course, occasionally, the phantom tumors are really due to nothing more than an accumulation of gas in the intestines, which patients seem to have the power of retaining for a long time when under the influence of certain mental ideas, and the consequence is a persistent tumor that constitutes the best objective sign of the supposed pregnancy.

Measles Before Six Months.—Dr. Edward M. Foote said he had recently consulted a prominent specialist with regard to measles in children, and had been told that the disease practically never occurs before the age of six months. He asked for the experience of others with regard to the occurrence of the disease in early infancy.

Dr. Bryant said that in his connection with the Hospital for Contagious Diseases he had seen a number of cases of measles in children under six months of age. Besides this he has seen a number of relapses of the disease and thinks that measles provides the least protection against a second attack of any of the infectious diseases of childhood. In one case Dr. Bryant had seen five relapses of measles, after each of which the patient was free from rash for at least one week before the new crop of measles lesions appeared. He has also seen patients suffer successively two and three attacks of the disease.

Second Attacks of Syphilis.—Dr. Sturgis said that he has seen several cases of second attack of syphilis occur under his own observation. He is sure in these cases that the patients after an interval of several years had a repetition of their syphilitic symptoms running through all the so-called stages from primary to secondary lesions, showing that there had been a reinfection. One of his patients was a young man who had a light attack of syphilis at first, and some six years later a severe attack. The other patient was older and had severe syphilis at first and later a comparatively mild attack. The most interesting feature of these second attacks is the fact that they give absolute assurance that under certain circumstances the disease is completely cured; a second attack would not occur so long as any remnant of the previous infection remained in the system. Such evidence as this is of special importance at the present moment, when there are exaggerated notions of the incurability of syphilis; many eminent specialists incline to the opinion that years of medication are required for its eradication; some practically advise discontinuous medication at intervals for most of the rest of life. This makes the question of syphilitic therapy rather discouraging and the assurance of cure in certain cases is, to say the least, a consolation.

Treatment of Syphilis.—Dr. Eugene Fuller said that syphilis is a disease that must always be treated with respect. It is at least as serious a pathological condition as tuberculosis in any of its forms, and the more one learns of its pathology, the more serious has its significance become. Dermatologists are prone to make less of it than is perhaps justified by the ultimate results in many cases. Neurologists, on the other hand, who see only its effect on the central nervous system, never slight it. There is no doubt that it affects all organs; many more cases of liver trouble than are usually attributed to it are really due to its existence in the system. The fact of the matter is that most patients are not treated with sufficient thoroughness; after five or six months patients see no further symptoms and can find no reason for continuance of treatment or for further visits to the physician. They conclude that the doctor is working them, lose confidence in medicine and the result is the development of the serious sequelæ of the disease a little later.

Syphilis and Infant Mortality.—Dr. Grandin said that the importance of syphilis in women's diseases and in obstetrics could scarcely be exaggerated. Not only syphilis but the other venereal diseases are extremely important. The gynecologist who sees serious lesions of the female genital tract and the obstetrician who assists at the birth of dead children feel strongly the necessity for regulation that would make these diseases less prevalent than at present.

Dr. Dudley said that the results of syphilis in the newborn were of themselves sufficient to make physicians realize the awful importance of the disease. He knows of thirteen children who have been lost in two families because of two syphilitic fathers. Syphilis is undoubtedly worse than tuberculosis, and at the present time, when so much is being done to prevent the spread of tuberculosis, physicians should be ready to begin the crusade for the prevention of syphilis.

Dr. Sturgis said that the neurologists are daft on the subject of nervous syphilis. The easiest argument in the world to make is *post hoc ergo propter hoc*, and it is the argument most liable to mistake. It is conceded that syphilis may affect every tissue, yet it is seldom a fatal disease and it is by no means so unamenable to treatment as is often said. It is not easy to differentiate tuberculosis and syphilis and some cases are attributed to syphilis undeservedly. Women suffer seriously from syphilis, but do not die from it, though it must be confessed that child mortality is greatly increased by it. Drinking habits and syphilis often go together, and the supposed serious sequelæ of syphilis are often really due to alcoholism.

RUSH MEDICAL SOCIETY OF CHICAGO.

Stated Meeting, Held February 3, 902.

Dr. Dickerman in the Chair.

Huntington's Chorea.—Dr. Harold N. Moyer reported four cases of Huntington's chorea. Two of these presented a family history in which the disease had occurred in a direct line for four generations, as

well as appearing in numerous collateral branches. He referred to Huntington's original paper, published in 1872, and stated his belief that one of his patients, who was born in southeastern New York, probably belonged to one of the original "megrim families" upon which Huntington's description was based. Huntington's chorea is a variety of the progressive degenerative chorea of adults, which is only to be distinguished from the latter by its family type.

Dr. George W. Hall, in discussing Dr. Moyer's paper, said that there is nothing more interesting in medicine than the study of nervous diseases and especially their history. It is, however, unfortunate that the disease under discussion has been named Huntington's chorea. It differs in a great many ways from the chorea of childhood as far as its pathology is concerned and Huntington, as has been stated, was really not the first to describe the disease. Waters of New York, in a letter to another physician, mentioned practically the diagnostic points of this form of chorea thirty years before Huntington published his article, which was read before the Meigs and Mason Medical Society in Ohio in 1872. Waters in his letter to Dr. Dunglison mentioned the four following points, *viz.*, (1) the pronounced hereditary tendency of this form of chorea; (2) its rarity before age of forty-five; (3) its incurability; (4) its tendency to dementia. Huntington believed that this disease was peculiar to a certain locality in New York and he noted the heredity, the gradual tendency to progress as well as the tendency to suicide or dementia. Dr. Moyer states that there has been no variation from Huntington's statements down to the present time. Huntington made an unconditioned statement that when one generation was skipped, this disease never occurred in any succeeding generation, or, to use his words, that is was handed down as an heirloom from one generation to another, differing in this respect from syphilis and tuberculosis. Recent literature contains records of cases in which one generation has been skipped and the disease again presented itself. And if he noted correctly, one of Dr. Moyer's cases presents such a history. Dana, however, records a case, a male, aged thirty-seven, whose great-great-grandmother, great-grandmother, grandmother and mother were affected similarly. Dr. Moyer, he believed, made the statement that the symptoms and choreiform movements could not be distinguished from those of childhood. The movements certainly differ from those of Sydenham's chorea in that they are coarser, more irregular, incoordinate and lack rhythm. The progressive tendency toward dementia is noted in most of the cases reported. Osler states that it is a neurodegenerative disorder, that the cerebral changes are very similar to those found in chronic dementia—a meningo-encephalitis. Dr. Good of Michigan, who made a very complete postmortem report on a case observed by him in one of the Michigan insane hospitals, found considerable atrophy of the brain convolutions with marked adhesions of the brain coverings, changes in the vascular system and great cell degeneration.

Anatomy of the Ear.—Dr. George E. Shambaugh demonstrated a series of anatomical preparations of the ear. The study of the anatomy of the ear is in many respects not an easy matter. The ear has a very complicated structure and the parts are crowded together into such a small space, while the whole is encased in the solid bony walls of the temporal bone, that it makes their study by the ordinary methods of dissection quite unsatisfactory. The study which the student of medicine usually puts on the anatomy of the ear in the dissecting-room consists of chiseling a hole into the pneumatic spaces of the mastoid process. What facts the student may have at his command of the anatomy of the ear he has gathered from descriptions in textbooks. Knowledge acquired in this way is not the real, definite knowledge that the student can apply readily when studying clinically the diseases of a part. The most serious problem one has to contend with in giving clinical instruction in otology is this lack, on the part of the student, of any definite knowledge of the anatomy of the ear. A clear, definite mental picture of the structure of the organ of hearing is best acquired by the study of actual anatomical preparations of the ear made especially to bring out the various parts. Such a set of preparations were shown. The set includes the following: (1) A series of sections of the dried temporal bone cut through the various planes so as to bring out clearly the different parts. (2) A similar series of moist preparations with the soft parts intact, including preparations of the external ear and the Eustachian tube. (3) Corrosive casts made of Wood's metal. These casts are specially useful for showing the structure of cavities like the spaces in the temporal bone occupied by the organ of hearing. (4) Casts of the labyrinth alone and others of all the spaces in the temporal bone, including the labyrinth as well as the mastoid cells and the external meatus. (5) Pen-drawings of most of the preparations made just twice the size of the actual preparation, with each point of interest labeled with its correct term according to the B. N. A. system. By comparing the preparation with the drawing, the student can, without any difficulty, pick out any point on the preparation and get its correct name.

The specimens were highly commended by Prof. Holtz and Dr. Dickerman as being of great value in teaching. Dr. Moyer spoke of them as being of special value in demonstrating the anatomical relations of the ear to the brain.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 8, 1902.

The Vice-President, George G. Peabody, M.D., in the Chair.

The order of business included the discussion of the resolutions on the action of the Treasury Department declaring pulmonary tuberculosis "a dangerous contagious disease" and debarring consumptive aliens, rich and poor, from entering the country.

In discussing the resolution Dr. Knopf said that to declare consumption a dangerously contagious disease is to advise public opinion that even incipient tuberculosis must be sedulously avoided. As a consequence patients suffering from early tuberculosis will fear to consult a physician because of the dread of social ostracism if it be once known that they are suffering from the malady. Practically the only chance for the successful treatment of tuberculosis is during the incipient period. In our American sanatoria seventy-five per cent. of the incipient cases are discharged cured. The resolutions offered do not counsel the admission of pauper immigrants suffering from tuberculosis nor condemn the Treasury Department for refusing to admit them. Emigrants, however, who are well able to take care of themselves, or to provide for their care should not be debarred for fear that they will prove centers for the distribution of tuberculosis.

Dangerous Contagion.—To say that a disease is dangerously contagious implies that mere contact with a patient suffering from it may cause the development of the disease in another. This is not true for tuberculosis, and only long exposure to respiratory infection will bring about its development in those who live close to tuberculous patients. There is no danger even from

this form of infection if proper precautions of cleanliness are observed. It is evident then that the Treasury Department resolution is exaggerated and not founded on scientific observation nor on experiment. The Academy of Medicine by adopting these resolutions will state the proper position that the medical profession assumes on this subject and will prevent an outbreak of phthisiophobia that might easily have serious consequences.

Presumption of Small Representation.—Dr. Quimby said it would be presumptuous to let the few members of the Academy present—not more than fifty or sixty in all—set themselves up as the representatives of the 10,000 medical men in New York. The Treasury Department decision is in accordance with recent advances in knowledge of tuberculosis. These patients are a source of danger to others. If the paper must be stripped from the walls of rooms in which tuberculous patients have lived and it is declared that only fire can really accomplish the purpose of properly cleansing such rooms, the logical outcome of this knowledge must be faced and the surveillance of tuberculous patients must be insisted on. Otherwise medical men stultify themselves before the public by announcing one thing in theory and then fearing to carry out the practical conclusions.

Infection and Contagion.—Dr. William H. Thomson said that years ago he proposed a distinction in the significance of the two words infection and contagion. Infectious diseases were those due to micro-organismal activity. Contagious diseases were those in which proximity of the well to the sick brought on the disease. There is an entire class of infectious diseases that are non-contagious; of these typhoid fever is a good example. Years ago the Boston Health Board declared cholera non-contagious and said that it was due to a miasm that spread through the air; hence measures need not be taken to guard against it. It is unscientific to label tuberculosis contagious and the New York Academy of Medicine compels the Board of Health to eliminate the word contagious from their rescript with regard to the disease. It is a reproach to the profession that the Treasury decision should stand without protest.

Dr. Dana said that the resolutions in his opinion should not be passed, as was proposed, but should be referred to an authoritative committee. This would stamp the action of the Academy as thoroughly official and considerate.

The resolutions proposed by Dr. Knopf were then carried by vote of the members present.

On motion it was also resolved that a copy of these resolutions should be sent to the Treasury Department in formal manner and also to the State medical organizations of New York.

Tuberculosis Wards on Blackwell's Island.—The report of the Committee appointed by the Academy to examine the buildings on Blackwell's Island, recently abandoned by the State Hospital for the Insane, to decide as to their possible usefulness as wards for tuberculous patients, was accepted. They consider that these buildings will be suitable for advanced cases of consumption and only for these after certain improvements suggested by the Committee have been made in them. The Committee consider that these buildings should be looked upon only as a temporary provision for tuberculous patients and that their occupation should not delay the arrangement of other ways of taking care of the tuberculous.

Phenomenon of Inhibition.—Dr. S. J. Meltzer read a paper on the phenomenon of inhibition and its possibilities in pathology, especially in its relation to myxedema and exophthalmic goiter. Dr. Meltzer said that the demonstration of the power of the vagus nerve over the heart opened up the whole subject of inhibition. Stimulation of the inhibitory fibers produce a number of effects upon the heart; it lessens the power of the organ to contract, it diminishes the tonus of the cardiac muscle; it diminishes its excitability and its capability of responding to stimuli; it abolishes conductivity within the heart structures, and, finally, it changes the electrical reaction of the cardiac muscle. Stimulation of the accelerator fibers produces just the opposite set of effects. This picture of the influence of inhibition gives the best general idea of the character of this property of nerve tissue influence that can be formulated. Inhibition may be exercised over nearly every tissue in the body. Function may also be inhibited and secretions prevented. The influence on other tissues is almost as extensive as on the heart, which is the type of this form of physiological effect. The most important characteristic is the omnipotence of inhibition over all cellular tissues.

Irritability used to be considered the most specific and essential characteristic of vital tissues. It is now known that inhibition is quite as extensive a property of tissues as irritability. All the connective tissues are irritable, which, as will be seen in the course of the discussion, may mean either excitation or inhibition. During life rest is as vital for tissues as activity. Most of the states of tissue existence lying between the exercise of function and rest are the resultant of the two forces, excitation and inhibition. Inhibition has sometimes been considered the process of anabolism, the building up of tissues. On the other hand, excitation has been considered coextensive with metabolism, the pulling down of tissues. Neither of these definitions is complete, however, and anabolism may proceed apart from inhibition.

If the two antagonistic nerves to the heart, the inhibitory and accelerator nervous fibers be stimulated, the only effect noticed immediately is one of inhibition. This inhibition is only a little less in quantity than if the vagus were stimulated alone. The accelerator nerve as an antagonist to the inhibitory nerve does not produce much effect. The effect of stimulation of the inhibitory nerve, however, soon passes off. The stimulation of the accelerator continues for some time afterward and can be noted when the inhibitory effect has completely ceased. The inhibitory nerves become exhausted much sooner than the accelerator nerves.

Motor Nerves and Inhibition.—Skeletal muscles respond to stimulation and it is often asked why the effect of inhibition is not noticed. As a matter of fact, the contraction of any muscle is accompanied by an inhibition of the tonus of the antagonistic muscles. Stimulation of the flexors, for instance, from the brain cortex inhibits the tonus of the exterior muscles in the same limb. At times in addition to these antagonistic actions a partial set of opposite effects are noticed on the other side of the body. This crossed innervation can be noticed in many functions of the animal organism.

Inhibition and Biliary Secretion.—The flow of bile into the intestine is one of the physiological mysteries that have not as yet been entirely explained. The splanchnic fibers of the vagus distributed to the intestine seem to act when irritated by the presence of food in the duodenum as inhibitors to the muscles associated with Vater's papilla, through which the biliary and pancreatic secretions are emptied into the intestine. This is not, however, the only action necessary in order to secure the presence of bile in the intestine. Some nervous reflex must be communicated to the gall-bladder so as to produce contraction in and evacuation of its contents. Needless to say these various actions

require a very delicately adjusted nervous mechanism which may easily get out of order; when it does, interference with the free flow of bile results. It is evident, then, that there are many causes besides catarrhal conditions of the biliary tract and biliary calculus that may prevent the flow of bile. Certain reflex nervous conditions may readily simulate mechanical obstruction of various kinds; undoubtedly, the emotional icterus so often described by French writers is due to interference with the delicate nervous mechanism that controls the flow of bile. Many of the reported cases of catarrhal icterus are, in Dr. Meltzer's opinion, due to reflex interference with the inhibitory and excitator apparatus of biliary flow. When there has been preceding gastro-intestinal catarrh, the diagnosis of catraahal icterus is well justified. When no symptoms of gastro-intestinal catarrh have occurred, the assumption of the existence of a biliary catarrh is at least suspicious.

Gastric Disturbances and Nervous Reflexes.—When gastric digestion is seriously disturbed, the gastric contents passed on to the intestine may prove entirely unsuitable for awakening the reflex nervous influences on which biliary secretion depends. When the chyme, for instance, has been crudely prepared, or when it is ejected from the stomach, covered by mucus, its presence may fail utterly to give the necessary reflex stimulation for the biliary apparatus. The problem of inhibition and of excitation in this part of the gastro-intestinal tract is extremely intricate, but its solution will enable the physcian to realize the etiology of many conditions that are now obscure, though certain words employed to explain them seem to give some idea of the true cause at work.

Inhibition and Colic.—Colic is usually considered to be due to a spasm of a mucous canal. This explanation, however, scarcely serves to make clear the intense twisting and sometimes increasing pain that characterizes colicky attacks. The real explanation seems to be that colic occurs when two parts of the intestinal canal are strongly contracted. These two portions are not far apart and while the lower one has a constant position the upper spasmodic contracture moves downward; this forces the gas and other contents of the intestine against the lower contracted portion and causes the painful distention of the intestine which gives rise to colic. This pain increases, rises to an acme and then is relieved to recur in a similar way when peristalsis causes another wave of contraction to pass downward. The contracted ring on which colic really depends is due to an inhibition of the motor muscles of the intestine at this point and a stimulation of the circular fibers.

Family Periodic Paralysis.—There are in the literature now about forty cases of patients suffering from periodical paralysis. These paralyses occur especially in members of certain families and last for from a few hours to a few days. During the existence of the paralysis there is a total absence of irritability of the muscles affected; neither mechanical nor electrical stimuli have any effect upon them. The paralysis would seem to be due to a state of inhibition which for the time being obliterates all nervous function in connection with the affected part.

Myasthenia Gravis.—This is a condition of paralysis consisting of a group of symptoms which closely resemble those of a bulbar paralysis. The muscles most frequently affected are those of the face, especially the eyes, head and neck, with difficulty of swallowing, defective articulation and inability to support the head. In the cases reported so far no lesion of the nervous system has been found, though most of the cases have proved fatal. Dr. Meltzer is inclined to think that this condition is due to an inhibition of special sets of muscles. The affection of various muscles fluctuates as if it were merely neurotic, but its fatality shows that some serious underlying condition exists.

Myxedema and Graves' Disease.—Dr. Meltzer considers these two affections as contrasting examples of the disturbance of normal equilibrium of inhibition and excitation as connected with the thyroid gland. Myxedema represents a diseased excitation of the tissue metabolism in favor of inhibition; Graves' disease is a corresponding disturbance of tissue metabolism in favor of excitation. In myxedema the heart beats are smaller and are usually slower, the bowels are sluggish, the sweat-glands are inhibited, the mental processes are rendered slow, muscular motion is slower than normal, the temperature is lowered and there is a general lack of systemic tonicity. On the contrary, in Graves' disease the heart beats fast and high, diarrhea is apt to be present partly as a result of increased peristalsis and partly because of increase of glandular secretion of the intestines; all other glandular structures are stimulated; the sweat and urine are more plentiful; the intentional tremor so characteristic of the disease is really due to the fact that there is an excitation of the flexor muscles with the failure of inhibition of the extensor muscles which prevents that simultaneous action that would keep the parts at rest.

Exophthalmic Goiter and Inhibition.—Most of the characteristic eye symptoms of Graves' disease are associated with a state of nervous excitation. Stellwag's symptom, for instance, represent an increase of tonus of the levator muscle of the upper eyelid. The exophthalmos itself is due, at least in part, to valvular dilatation behind the eyeball. Moebius' symptom is due to overstimulation of certain of the internal eye-muscles that prevent proper convergence in association with near vision. There would seem to be a set of symptoms in the peripheral vascular system that contradict the idea of overstimulation. The peripheral capillaries are all relaxed in Graves' disease. This can be readily recognized from the readiness of the patient to blush easily and from the prompt occurrence of the tache cérébrale when the skin is irritated even slightly. These signs are an index of peripheral vasodilatation. It is very hard to reconcile them with the existence of a stage of excitation in peripheral nerves generally. It must be remembered, however, that the important reservoirs of the vascular system are the large abdominal blood-vessels. Within the abdomen the state of excitation causes a narrowing of the large intestinal blood-vessels and the blood thus forced into other paths finds its most likely way into the peripheral capillaries. Consequently, these become dilated with blood, not as the result of true dilatation, but of overbalance in the circulation due to the closure of internal blood-vessels.

Treatment of Graves' Disease.—There is no doubt that the most effective remedy in Graves' disease is the phosphates. Sodium phosphate is probably the most generally useful remedy in the condition. There is some specific relation between the administration of the phosphates and the production of certain forms of nervous inhibition; this seems to be the secret of the true effect of the phosphates. This same drug, however, has very little, if any, effect upon the tremor due to senility or upon alcoholic tremor, though these forms of tremor would seem to be sufficiently closely allied to the intentional tremor of Graves' disease to be associated with it in therapeutics.

Inhibition an Accepted Theory.—Dr. Charles L. Dana said that the rôle of inhibition in nervous diseases is a widely accepted theory and neurologists generally have come to recognize it as an important funda-

mental influence in many nervous affections. It is comparatively easy to accept inhibition theories of nervous diseases with regard to peripheral nervous affections; with regard to nervous centers of inhibition, however, there is no good reason for acceptance. It is a fascinating theory, for example, to explain periodic palsy by inhibition of nervous impulses to certain muscles. Myasthenia gravis and especially the myasthenic attacks which are so characteristic of this disease certainly receive their most satisfactory explanation on the ground that they are inhibitory spasms, a sort of inhibitory tic, an affection the very opposite, by analogy at least, of chorea and the convulsive tic. Of late years, neurologists have come to realize that Graves' disease has its best explanation not on the theory that it is due to essential thyroidism, but to a vasomotor excitation of the bulb. Dr. Meltzer's ingenious explanation of the cutaneous vasodilatation existing in the disease is most plausible. It enables the neurologist to realize how notwithstanding the symptoms of excitation so prominent in the disease as regards the internal organs, there is relaxation in the peripheral capillaries.

Inhibition as Nervous Influence.—Dr. Thomson said that inhibition undoubtedly plays a more important rôle in physiology than has been thought. Inhibition is always at work. Every nervous function is controlled by others and healthy vitality is the resultant of inhibitory influences upon one another with due coördination. Even in the higher rational sphere, the influence of inhibition is very noticeable; dreams are made up of ideas and sense perceptions and sensation, but these follow one another without control or discipline, hence are absurd. True thought is properly checked and controlled by inhibitory influences. The eye must always be controlled and disciplined, or objects seen would be completely misunderstood. Since inhibition is so prominent in the higher things of human life, it would be only natural to expect that it would exert a dominant influence on the more properly physical activities.

Graves' Disease and Myxedema.—Graves' disease undoubtedly represents a paralysis of inhibition and the consequent domination of uncontrolled excitation. Dr. Thomson does not think, however, that the opposite nervous condition is the true explanation of myxedema. It is not an increase of inhibition that causes the symptoms of myxedema, but it is rather a lessening of all the physical activities on which life depends. It is as if the fires were banked underneath the engines and the amount of energy supplied to the machine lessened. Inhibition is an active quality. All activity is lessened in myxedema by the presence in all cellular structures of the substance that hampers metabolism, interferes with function, disturbs reflexes, and diminishes all vital activity.

Centers of Inhibition.—Dr. Meltzer in closing the discussion said that it seems almost hopeless to look for separate centers for inhibition, though this was the custom among physiological neurologists some years ago. Inhibitory centers seem to be associated with other motor and secretory centers and thus produce their effects by coördination and not by direct interference.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held February 10, 1902.

The Vice-President, William McCollum, M.D., in the Chair.

Collective Investigation of Disease.—The Vice-President, Dr. McCollum, introduced the President-Elect, Dr. Andrew H. Smith, who delivered the annual address. In the course of it he said that he would like to suggest that a practice of collective investigation might profitably be engrafted upon the other work of the Society, not in a very formal way, but merely by having under consideration two or three topics upon which the members would be invited to accumulate observations as opportunity offered. When a sufficient body of observed facts had been secured they could be made the subject of a report. At the present time, so far as he was aware, there was no other society in New York engaged in a work of this kind, and the vast city, with the teeming millions of its five boroughs, in all of which the Association had so many able representatives, certainly offered a most inviting and fruitful field for such investigations.

Specific Medication.—Dr. Smith then took up the special topic of the evening, specific medication. Having referred to what is termed treating the patient instead of the disease, he said there were morbid states which evidently are but the working of a foreign agent which has obtained a lodgment in the body, which latter serves merely as the theater of its operations. The activity of this agent then constitutes the disease, and the disease will continue so long as the morbific agent remains active. Such a disease is called specific, and the disease itself, as distinguished from the patient, calls for treatment. The treatment in such a case necessarily implies the employment of some remedial agent having the power of antagonising the nervous principle at work in the system. This antagonism may be either chemical or vital in its mode of action, and more commonly it is the latter. As yet, the list of diseases, such as malaria, rheumatism, and syphilis, for which universally accepted specifics exist is very limited. It is not claimed that a specific shall be successful in every case. The most required is that in uncomplicated cases, and under proper conditions, a cure may be expected, or, at least, that the disease may be held in check so long as the remedy is continued. It may be said, in general terms, that the prospect is favorable for an increase in the number of the remedies available for use as specifics, as the result of increased knowledge of the phenomena of cell life on the one hand, and the action of remedies on the other.

Thus far the field for specific treatment has been confined to diseases in which a foreign morbific element has been introduced into the system, with the exception of myxedema and its kindred diseases, in which the source of trouble is the absence of something furnished by the thyroid gland which is necessary to a proper action of the economy. Here the artificial supply of thyroid gland or its extract constitutes an efficient specific treatment. In diseases having a parasitic origin the problem is to act upon the specific microorganism in such a way as to prevent a further production of toxin. What is aimed at is not destruction of the germ, but inhibition of its activity. Different strengths of solutions of the same agent may represent two classes known as germicides (or disinfectants) and antiseptics. Thus, mercuric chloride in a strength of 1-300,000 will prevent the development of anthrax spores, while destruction of the spores requires a strength of 1-1000. A further difference in favor of antisepsis within the body, as distinguished from that observed in the laboratory, arises from the fact that blood-serum, so long as it is circulating in the vessels of a living animal, acts by virtue of its vital condition as an antagonist to bacterial growth. An assumption that is exceedingly common is that for combating germs within the body one must look to those agents that are relied upon for use as disinfectants outside the body; and it is claimed that safety in the use of this requires such a degree of

attenuation as would make them inoperative. It is a fact, however, that not one of the recognized specifics would be employed outside the body for its disinfectant properties; and, furthermore, quantities of the appropriate agent amply sufficient for the purpose are constantly being given as specifics with entire safety. The case for specific medication outside the few diseases for which it is universally admitted to be indicated, it may well be believed, is not so hopeless as is commonly supposed. It is not necessary that there should be only one specific for each disease, as is shown particularly in the instance of malarial fever, which may be successfully treated not only with quinine, but also with arsenic, salicin, carbolic acid, ammonium picrate, and perhaps some other remedies. To say that there is no specific for pneumonia, because so many different agents will inhibit the germ upon which it depends, is to argue that a thing cannot be done because there are so many ways of doing it. The criticism has been made that the effect of different antiseptics and germicides upon parasitic micro-organisms must bear a definite relation to the mass of blood in which they are diluted, which may be roughly estimated as 12 to 14 pints in the adult; but what definite relation does half a dram of quinine or of potassium iodide, or two or three drams of a salicylate, or a dose of antitoxin bear to 12 or 14 pints of blood? Who asks such a question in the presence of a case of malarial fever, of syphilis, of acute rheumatism, or of diphtheria?

In pneumonia the conditions are very favorable for acting directly upon the germs, so that theoretically the *a priori* aspect of the case is encouraging; while from the clinical side accumulating experience seems in a considerable measure to support the theoretical deductions. Of the drugs which appear to act more or less specifically in this disease, the one which thus far seems to have accomplished the most is the salicylate of sodium. One notable feature of its use is that lysis is substituted for crisis as the habitual mode of defervescence, the lysis, when the treatment is begun early, occurring in advance of the usual time of crisis. Beginning with the report of Liegel's cases in 1898, the writer gave a résumé of the results thus far obtained with this agent. He then went on to say that he had found the carbonate of creosote, also believed to control the action of the pneumococcus, nearly as efficient. It can be given in quantities of two or three drams a day without the slightest inconvenience, and will usually bring about a lysis commencing twenty-four hours after the administration is begun. It is to be preferred when the stomach is inclined to be irritable, and also in cases of considerable depression when the sweating caused by the salicylate would be objectionable. In a series of 20 cases recently treated with this remedy at the New York Presbyterian Hospital (after excluding those already moribund and those complicated with conditions necessarily fatal in the presence of any severe acute disease) two died, a mortality of 10 per cent. chargeable to the pneumonia. In the *Medical Record* of February 1, 1902, Dr. W. H. Thomson published the details of 18 cases treated with creosote carbonate with one death.

In the remainder of the paper Dr. Smith spoke of the specific treatment of influenza, scarlet fever, gonococcic infection, gout, and rheumatism. He referred particularly to the success obtained by Dr. S. H. Dessau with carbolic acid in influenza and to the remarkable results with the same remedy in scarlet fever reported by Wigglesworth, of Liverpool. In conclusion he said that while the bacteriologist is at work in his laboratory, the clinician on his side has a field for action. Carefully-conducted experiments will show that the present dosage of remedies may be safely exceeded in some cases, or that objectionable effects may be avoided by combinations of remedies which yet will leave the specific action intact.

Creosote Carbonate in Pneumonia.—Dr. L. F. Bishop spoke of his experience with the use of creosote carbonate in pneumonia in the Colored Hospital, and said that on the whole he had been very favorably impressed with it. In a number of cases there were existing conditions which rendered them practically hopeless. Of five uncomplicated cases three recovered and two died. In spite of this comparatively large percentage of mortality, it seemed to him that the remedy was of essential service. He had recently seen a case in which it acted very happily. Lysis had occurred and the patient recovered in a very satisfactory manner.

What is Meant by a Specific?—Dr. James K. Crook quoted the definition of the word specific as given by various authorities, and said that if one accepted these one would be obliged to exclude from the category of specifics several of the most important remedies referred to by Dr. Smith. Specifics other than drugs were sometimes mentioned. Thus, climate was spoken of as a specific for phthisis, a sea-voyage as a specific for dyspepsia. Again, methods of treatment were called specifics, as hydrotherapy for rheumatism and homeopathy for whooping-cough and tonsillitis. For his own part he thought there was very little use for this term in modern medicine. Most of the specific systems of treatment, as well as many of the much-vaunted "specific" drugs of the past, had sunk into merited oblivion. That most virile of latter-day specific cults, homeopathy, was also gradually passing away, and he gave some statistics showing its decline. At the present time a number of remedies, such, for instance, as sodium salicylate and creosote carbonate, were looked upon as specifics; but it was a question whether they might not in the coming years be regarded in the same light as so many of the so-called specifics of the past. As an illustration he referred to the history of potassium chlorate. Hope for the future lay in rational therapeutics, and it should be the aim to use remedies for certain definite purposes which they were known to accomplish. Nitroglycerin, for instance, was known to cause dilatation of the blood-vessels, and it could always be depended upon to fulfil that indication. This kind of therapy could not be overthrown.

The Treatment of Pneumonia.—Dr. Egbert Le Fevre said that, while he had used both the salicylate of sodium and the carbonate of creosote, he had to confess that he felt some hesitancy in pushing these remedies to the full limit advised by some writers. The temperature fell by lysis and a fair proportion of the patients recovered, and yet he could not but think that for the most part they would have done quite as well without such treatment. He was, therefore, still in doubt as to its efficacy, and it seemed to him that there was some danger in putting these remedies forward as specifics.

The Use of Creosote.—Dr. Beverley Robinson said he was sorry to differ from the writer on many of the points that he had advanced. As to creosote, he believed it to be about the best anticatarrhal agent we possessed. It also had perhaps a certain amount of antiseptic quality. The best way of getting it into the system was by means of inhalation. In bronchitis or threatened bronchopneumonia and in commencing croupous pneumonia it was his practice to employ vaporized creosote in the room. In this form it was also the best protective agent for all those who had to be in the sick-room. He did not believe that there could be a specific for pneumonia, because the cases differed so greatly in character.

Preventive Medicine.—Dr. R. E. Van Giesen said that in therapeutics the tendency at the present day was toward prevention. He thought it most unfortunate that the announcement of Koch's tuberculin had been made to the world prematurely. With the improvements that had been made in its employment he believed that it would be generally recognized as having a distinct field of usefulness. He felt convinced, however, that it would never be of benefit except in the early stages of tuberculosis.

Serumtherapy.—It seemed to be a fact that every microbe has the capacity of developing its own antitoxin. Personally, he had looked upon the advent of diphtheria antitoxin with suspicion, but after he had made an investigation of the matter himself he felt convinced that as far as diphtheria was concerned a specific was in sight. The antitoxin should be employed at the earliest possible moment, for the later in the disease it was given the smaller was the chance of its proving successful. He believed also that other infectious diseases would give up their germ and would be benefited and conquered in the same way as diphtheria.

Dr. Homer Wakefield called attention to the fact that in rheumatism the salicylates, when given between meals, did not seem to have the same effect as when given at or immediately before or after meals. The bacterial product of fermentation might be either gastric or intestinal, or both, and when the fermentation was more intestinal than gastric salol acted more efficiently than the salicylates. In pneumonia, again, creosote acted better when given with meals than on an empty stomach.

Carbolic Acid in Influenza.—Dr. S. H. Dessau said that for the past six years he had employed carbolic acid constantly and freely, on the ground of its supposed action as an internal antiseptic. He had given it to thousands of children and had never met with an accident from it. He had found it especially useful in cases of modified influenza with subacute bronchitis when there was a persistent irritative cough. He had also employed it with success in typical cases of influenza.

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

Stated Meeting, Held February 13, 1902.

The Chairman, Rowland G. Freeman, M.D., in the Chair.

Acquired Syphilis in Child.—Dr. Sara Welt Kakels presented a girl, eight years of age, suffering from acquired syphilis. The initial lesion had been on the clitoris and the child had had the usual secondary symptoms. The general adenopathy was quite marked and the lymph-nodes in the groins were especially enlarged. The enlargement was the characteristic discrete nodular hyperplasia that occurs in acquired syphilis.

Specific Stomatitis.—Dr. Henry Heimann presented a child suffering from stomatitis thought to be due to specific forms of micro-organisms. Scrapings from the stomatitic patches showed the presence of the bacillus of Vincent and the spirillum of Miller. The affection has been noted in a large number of cases, always associated with these two micro-organisms and thought to be due to their action. The treatment is by the use of silver solution in a strength of five to ten per cent. It occurs in run-down children and may prove enduring unless properly treated early.

Adenoid and Tonsil Pathology.—Dr. A. J. Lartigau said that the physiology of the normal tonsil is not very well understood as yet and physiologists are not very definitely agreed as to all of its functions. The lymphatic tissue of Waldeyer's ring can be best studied in the faucial tonsil. Its lymphatic structure corresponds very closely to that of Peyer's patches, but there is no agreement as to the interpretation of its functions here. There is no doubt that substances can be absorbed through these lymphatic patches and such powders as carmine, soot and cinnabar have been demonstrated at some distance from the surface after having been placed on the surface of the normal lymphatic tissue. Goodale considered that these powders are normally absorbed, partly through the lacunæ of the tonsillar tissue, and that they partly follow the connective tissue layers, while some of the grains are carried by leucocytes. Undoubtedly the absorption of bacteria with the pathological changes they induce opens the way for the absorption of other substances. It has been thought that absorption would not take place through the normal mucous membrane, but the present trend of opinion is against this notion. The leucocytes in the tonsillar tissue are not true phagocytes, as a rule, although some of them are. The lymphatic tissue in the tonsillar region is not smooth in outline and is not covered by ciliated epithelium, hence there is a lack of protection. There is a great liability to mechanical lesions owing to the swallowing of imperfectly chewed food. The irregularity of contour of the tonsils and the presence of crypts furnish special lurking-places for irritant particles, bacteria and other offending material. Saliva is thought to have a positive chemotactic action. The lymphoid tissue in this region furnishes protection against bacterial invasion, first, by its filtration action, secondly, because it attenuates the virulence of bacteria present, and, third, because there is a tendency to immunity from the free cells that exist in the parts.

Tonsillitis Varieties.— There are many varieties of tonsillitis, although they are apt to be grouped together in the practitioner's mind. Some of the pathological processes here are deep, some are superficial, some are exudative, and some are hyperplastic. Many of them are due to micro-organisms, the most common invaders being the various pyogenic micro-organisms, especially the streptococcus and staphylococcus, and after these the diphtheria bacillus, the pneumococcus and the bacillus tetragenus. Syphilitic infection of the pharyngeal tonsils has not been reported, although syphilitic affections of the faucial tonsils are not rare. Primary, secondary and tertiary lesions may occur. The diplococcus lanceolatus is a frequent cause of tonsillitis. In eleven cases of non-diphtheritic tonsillitis cultures taken from the throat proved to be sterile in five cases, while in six the growth showed a mixed infection consisting mainly of the streptococcus, but in a form that is rather non-virulent for rabbits.

Tuberculosis of Tonsils.—The results of the gathering of statistics with regard to tuberculous affections of the tonsils are somewhat discordant. The disease may be either primary or secondary. Secondary tuberculous tonsillitis occurs in chronic pulmonary tuberculous patients. This is not uncommon. About 80 per cent. of consumptive patients suffer from it. In 21 cases examined by Strassmann 13 showed tuberculous tonsillar lesions. In Schlesinger's cases every one had an affection of the tonsils. Primary tuberculosis of the tonsils is rather rare. Eighty cases examined for the purpose showed not a single positive result. Tuberculosis of the tonsils, when primary, is focal in character, small in area, and is situated near the surface of the tonsils. Pharyngeal tuberculosis, being localized in character, is often missed and treatment would probably be of little avail considering the condition of the patient.

Surgery of Adenoids.—Dr. W. K. Simpson said that some practitioners still think that there is no need to remove adenoids. They wait for Nature to relieve the condition that exists or fondly deceive themselves with the idea that the patients will outgrow it. The effects of adenoids are more deleterious the longer they are allowed to remain. These effects are seen in many parts of the body. Many cases of spasmodic croup are really due to the nervous reflexes induced by the presence of adenoids. The obstructed voice, the middle-ear deafness and the suppurative otitis media, so often seen in children, are usually due to adenoid enlargements. The mouth-breathers suffer from disturbed sleep, from malformations of the chest, from mental listlessness, and from general disturbance of normal development. If at the same time hypertropied tonsils be present, this makes the condition worse and the little patients are liable to constantly recurring attacks of pharyngeal and laryngeal inflammation. The only treatment that is of any real service is the radical removal of the overgrown tissue. Careful digital examination should be made in order to decide just where the adenoid masses are, so as to be able to remove them. Removal should be accomplished by instruments. The finger only serves to break up the masses and portions of them come away piecemeal, but the tumors are not detached from their bases. After the forceps are employed, the finger should be again introduced in order to ascertain whether other portions are removable. The curette serves a useful purpose in taking away shreds. For the removal of adenoids the Wilds snare is a very difficult instrument to employ, especially in children in whom there is very little room for its manipulation, and at best it should be reversed for young adults. Whether the curette or the forceps should be employed is a matter of individual practice. As a rule, there is less shock after the operation if no anesthetic is employed and the patients lose less blood. It is possible that under anesthesia portions of the adenoid growths may find their way into the larynx. One of the faults with the old forceps for adenoid operations was that the cutting surface was too small. The instrument took away only a very meager portion of the growth and it was difficult to reach a definite point in the nasopharynx to remove the vegetation. Modern forceps are, however, made with a much larger bite and with a sheath covering that saves the uvula from any chance of injury and protects the soft palate. As a rule, a much larger instrument can be employed even in small children than might be imagined. A child of three or four years of age will not be inconvenienced much by the largest forceps. The child should be put on a table on an inclined plane in order that the blood may readily make its escape. The curette to be employed must be more curved for adenoids that exist in the vault of the pharynx than for those on the posterior wall. When adenoids project more or less into the posterior nares the palate should be brought forward with a finger or the retractor to facilitate their removal. By the exercise of proper care practically all of the growth can be removed. Careful preliminary examination is the most important part of the technic for it enables the surgeon to decide just how his instruments must be applied.

Recurrence of Adenoids.—At times after the patient's upper respiratory passages have been free for some time following an operation they again become blocked up and an apparent recurrence takes place. This is evidently due to an inflammatory overgrowth of portions of the adenoid tissue which have been left behind. It is often impossible completely to remove adenoids. They exist at times at the sides of the nasopharynx or even in the fossæ of Rosemueller. At times, too, the growths project into the posterior nares and it is almost impossible to secure their complete removal. The portions left seem to take on renewed development and this constitutes the apparent recurrence. As a rule, the fork in the tonsillotome should be without darts. The darts add very little to the value of the instrument and they sometimes add considerable to the inconvenience of its application. There are three requirements for tonsillotomy: First, the tonsils should be well engaged; second, as small an amount as possible should be left behind, and, third, the pressure upon the tonsil from the outside should be kept up. After the operation nothing should be seen between the pillars of the fauces. Dr. Simpson considers the Mackenzie tonsillotome an ideal instrument. It serves very well as a mouth-gag and can do no harm. At times the tonsil is adherent to the pillars of the fauces. It may be separated by means of a bistoury or hooked tonsil knife. The flat broad tonsils that cannot be encircled by the tonsillotome may be operated upon by means of the punch forceps, which do their work very well, or may be reduced in size by means of electropuncture. This last process is, however, very slow.

Hemorrhage and After-Treatment.—In operations upon children's tonsils there is very little danger of hemorrhage. Few serious cases have been reported and almost without exception these have not been fatal. Secondary hemorrhage is said to occur a little more frequently after the employment of adrenalin to prevent primary hemorrhage. This is not, however, sure and more experience will probably serve to show that it is rather an undergrounded fear than a real danger. When an artery spouts torsion forceps should be applied. If the bleeding be a general oozing instead of from any definite point, the perchloride of iron should be used in order to stop it. As a rule, no after-treatment is required subsequent to tonsillotomy. Douching and insufflation of powders should be forbidden. Cracked ice may be allowed for twenty-four hours afterward and seems to add to the comfort of the patient, while it lessons the risk of hemorrhage. The patient should be advised to sleep with the head rather high, and rest during the day succeeding the operation should be insisted on. Little children should not be allowed to play about the room, and the eating of hard morsels as bread crusts or even meats should be forbidden. Liquid foods should be prescribed. As a rule adenoids can be removed with less hemorrhage without an anesthetic. There are, however, extremely nervous children for whom an anesthetic may be required.

The Lymphatic Constitution.—Dr. James Ewing said that it has now come to be recognized that sudden death occurs rather frequently in certain cases in which no definite organic lesion to account for it can be ascertained. In these cases there is often found on autopsy a general lymphatic hyperplasia that involves all the lymphoid tissues of the body. Not only are the lymphatic nodes enlarged, but there is usually enlargement of the various structures of Waldeyer's ring, of the pharyngeal tonsils and of the lymphoid structures of the intestines, Peyer's patches, etc. Accompanying this lymphatic condition there is a hypoplasia of the aorta and a failure to develop of certain other organs. The most interesting hypothesis recently suggested with regard to the lymphatic constitution is that of Ohlmacher, who believes that most epileptics suffer from the condition and that fatal epilepsy is especially apt to be associated with lymphatic enlargements in various portions of the body. Typical *grand mal*, he thinks, always has the lymphatic constitution for its basis. Nervous symptoms are frequently associated with the lymphatic constitution and this subject is developing in

a manner that is of great practical interest. The neurosis of Basedow's disease and the enlarged thyroid are perhaps associated with this lymphatic constitution.

Recent Anatomical Advances.—Dr. William Elser showed by observations made in the laboratory of the Cornell Medical School that hemolymphatic nodes are frequent in the bodies of patients dead from the status lymphaticus. Quite recently attention has been directed to the atrophic stage of the disease. In these cases with the associated lymphatic enlargements there are infantilism of the sexual organs, the open foramen ovale of the heart and a small pelvis. At times it has been thought that the sudden death in the status lymphaticus was due to cerebral anemia, but this is doubtful. It has been pointed out that a catarrhal inflammation of the mucous membrane exists about the enlarged lymph-nodes, and it is thought that the latter predispose to enteritis and at times perhaps also to tuberculosis.

Thymic Asthma.—The impression has been gaining ground in recent years that the symptoms ordinarily called "thymic asthma" always develop on a basis of the lymphatic diathesis to which are subsequently added the other symptoms of the asthmatic condition. There is now no doubt that the enlarged thymus does sometimes cause sudden death by its pressure upon the trachea and upon important nerves leading to the larynx. In one case the patient has been saved by cutting down upon the enlarged thymus and sewing it to the sternum. The sudden death in these cases is due to capillary bronchitis only in rarer instances and the symptoms are of slow development. The general nervous condition is now thought to be more important than anything else in the etiology of the symptoms of the condition. The hypothesis that they were due to hyperthymization of the system has not been confirmed. It is true that the injection of extract of the thymus causes dyspnea and other symptoms in young animals and seems to lower their resistive vitality. This does not of itself, however, prove the theory. It is probable that the further study of the sympathetic nervous system may lead to some important developments with regard to the pathogenesis of the lymphatic constitution. When the status lymphaticus exists the administration of chloroform is nearly always fatal. The question at issue is, is chloroform ever fatal in any cases except those associated with the status lymphaticus? At Gratz all the fatal cases of chloroform narcosis in children have been found to be associated with the lymphatic constitution. The diagnosis of the lymphatic constitution is not impossible. The existence of the enlarged lymph-nodes throughout the body can very easily be recognized. If to this general adenopathy there is joined an enlargement of the visible lymph-structures at the back of the throat, especially the tonsils and adenoid tissues in the nasopharynx, it would seem almost unjustifiable to use chloroform as an anesthetic. This is an extremely important practical question to which sufficient attention has not been given. [Dr. Ewing's paper will appear in a subsequent issue of the Medical News.]

Treatment of Cervical Lymph-Nodes.—Dr. Charles N. Dowd said that it is extremely common to find the lymph-nodes of the neck enlarged as the result of sore throat. Single nodes may develop to the size of a horse-chestnut and yet subside without breaking down. They may last for months and yet disappear by resolution. The main question of interest in all cases is, Are they simple inflammatory enlargements or are they due to tuberculosis? As a rule, simple inflammatory enlargements reach the size of hickory-nuts, cause stiff neck for some days and then subside. In a recent case, however, Dr. Dowd has seen intense dyspnea develop as the result of the breaking-down of a series of inflamed lymph-nodes and this was only relieved when pus was evacuated from the deeper structures of the neck. Dr. Dowd has had some recent cases in which it was extremely difficult to decide what was the etiology of the condition. It was also very difficult to decide whether surgical intervention should be undertaken or not. In one case the temperature ran up to 104° F., and then had a series of remissions, but always with high temperatures in the afternoon. Dr. Dowd felt sure that pus was present and yet the enlarged lymph-nodes subsided without operation. Dr. Dowd exhibited a patient who had suffered from eczema of the face and then developed a swelling nearly as large as a pullet's egg beneath the jaw. This is rather hard in consistence, does not give pain and is not tender. The question is, Is it tuberculous in origin and will it suppurate? Most tuberculous enlargements may last for several years and yet remain rather small. As soon as it is definitely decided that the enlargement of the lymph-nodes is due to tuberculosis, they should be removed. The resulting scars are less in this case than if abscess formation and spontaneous evacuation were permitted. As the result of operative treatment for this condition in Berlin, 70 per cent. of cures are reported while only 24 per cent. were cured by expectant treatment.

Conservatism as Regards Adenoids.—Dr. Jacobi said that if adenoids be very large in children, they should be removed. Surgical intervention is not needed, however, for small adenoids, even though they produce such symptoms as snoring and mouth-breathing. In these cases parents should instruct their children to irrigate the nares with warm salt water or boric-acid solution. This irrigation should be done very slowly; injections under pressure must by no means be made. Dr. Jacobi has seen many hundreds of cases in which symptoms were relieved by this simple means and no operation was needed. Adenoids should never be removed under general anesthesia, because in order to relax the spasm of the masseter muscle, one of the strongest in the body, the child must be anesthetized within an inch of its life. It is easy to remove adenoids by having the mother sit down in front of the doctor and hold the child on her knee, allowing its head to drop between the knees of the doctor. The little patient is thus held firmly, the blood finds its way out through the nose and the operation is over in a few minutes.

Dr. Quinlan deprecated the use of irrigation as tending to lessen the good that might be accomplished by the radical removal of adenoids. The results of the condition are too serious to allow temporization; when adenoids exist they should be removed.

Dr. Dowd said that since the administration of chloroform is liable to be fatal in children suffering from adenoids it should not be used. Dr. Lartigau said that ether also causes death when the lymphatic constitution is present. Dr. Jacobi said that chloroform is preferable to ether for child narcosis, because it kills through the heart and the child's heart is proportionately stronger than that of the adult.

BOOKS RECEIVED.

A Practical Treatise on Materia Medica and Therapeutics. By Dr. J. V. Shoemaker. Fifth Edition. 8vo, 1135 pages. F. A. Davis Company, Philadelphia.

Progressive Medicine. Edited by Dr. H. A. Hare. Vol. IV., December, 1901. 8vo, 409 pages. Lea Brothers & Co., Philadelphia and New York.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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SPECIAL ARTICLES.

THE MEDICAL DEPARTMENT OF TULANE UNIVERSITY OF LOUISIANA.

THE founding and upholding of the Medical Department of Tulane University of New Orleans was largely due during its earlier years to the energy of two young men who were born far away from one another, educated under totally different conditions, and who met and formed a friendship under the most tragic and harrowing circumstances.

The names of Thomas Hunt and Warren Stone are among the greatest names of New Orleans and in the annals of the Medical College. Both were born in the same year, 1808, but, while Dr. Hunt's family were wealthy people who had come from the West Indies, Dr. Stone was the son of a Vermont farmer. Dr. Hunt was born in Charleston and brought up with every advantage that wealth and education could give to a remarkably precocious and clever boy. The classics, law and literature were his accomplishments before he selected medicine as his profession. He took his degree at the University of Pennsylvania at the age of twenty-one and went to Paris for a year and a half, returning to Charleston on the death of his father.

While he was receiving the education and the introductions that were to insure him a reception in the best families and in the highest medical circles of the South, his unknown contemporary, a fatherless boy in St. Albans, Vermont, was getting the scanty education of a farmer's son in New England. His mother, however, supplemented the deficiencies and aided him materially in the preparation for the study of medicine. After graduating from the Medical School of Pittsfield, Mass., in 1831, he began to practise in Troy, N. Y., and it so happened that he was called upon to attend the first cholera case that was brought to Troy, which came with the emigrants to Quebec and Montreal, who, in their alarm, fled to the States by way of Lake Champlain. Dr. Stone promptly recognized the new disease and attended the destitute victim. Thirty-five years later he wrote a paper on cholera and its treatment, in which he said: "It so happened that my professional life and the cholera in this country commenced together," and it is a wonder that his professional career did not end when it began, with the cholera; for his experience in Troy was but the introduction to the exciting siege with it in the cholera ship "Amelia," in which he embarked for New Orleans, where he had determined to settle and practise.

The brig "Amelia" left New York with 108 passengers. Four days out a terrible storm came on and all the passengers, four of whom had started from New York with cholera, were stifled under the hatches, which were closed to keep the ship from sinking. When the storm passed Dr. Stone found twenty-five persons in the second stage of cholera. The vessel was beached on Folly Island, off Charleston, and was soon boarded by wreckers who carried the disease with them from the ship. The island was the property of a planter, Mr. Alexander Milne, who opened his house to the sick and destitute shipwrecked people and generously furnished supplies. The wreckers were forbidden the ship and it was burned. All communication with the mainland was cut off, except for the physicians who were sent out by the city. Three were in turn sent to quarantine the island and tend the sick, but returned exhausted. Then young Dr. Hunt was appointed and given full charge. A few months before he had prepared such a complete and extensive memoir on the subject of cholera and the measures for its prevention that it was afterward published for practical use when the disease spread. He entered on his task with great courage and energy. The passengers and negroes of the plantation demanded his incessant personal care, but in the midst of the strain and horror he was assisted at every turn by Dr. Stone. These two youths of twenty-three bore the brunt of the work together and formed a friendship which endured through their lives.

Sickness was the reward of Dr. Hunt's efforts and poverty the result of Dr. Stone's journey. Both were thinking of New Orleans as a place to settle and discussed their future together. On leaving Folly Island Dr. Hunt returned to Charleston, where he was received as a hero and where he was presented by the citizens with a massive silver goblet as a testimonial of their gratitude, while Dr. Stone continued his journey to New Orleans, and in December, 1833, arrived on the levee with one picayune in his pocket. He often said, half humorously, that he would not have saved this, but for the sake of preserving a nucleus.

It was in that year that cholera claimed six thousand victims from a population of fifty thousand, and that in a city where yellow fever was also epidemic. The ravages of the two frightful pestilences filled the new Charity Hospital to overflowing and, through the kindness of Dr. Cenas, Dr. Stone was appointed to a position in this hospital.

A few months later Dr. Hunt, who had moved to New Orleans and succeeded Dr. J. M. N. Picton as house surgeon, renewed his friendship with his companion of the Folly Island pestilence, and through his recommendation Dr. Stone became assistant house surgeon under Dr.

John H. Harrison, house surgeon, upon the resignation of Dr. Hunt, who had conceived the plan of using his energies in founding a medical college in New Orleans.

The name of Dr. Harrison introduces another brilliant young man to the trio of future great men of the city and of the yet unfounded medical school. John Harrison was also born in 1808, but in Washington. He came of an old and well-known Maryland family, and inherited his taste for medicine from his father, who was a surgeon. He studied medicine with his uncle, Dr. Baltzell, and was graduated from the University of Maryland in 1831. His classical and scientific education had been excellent and he was proficient in foreign languages, so that when he came to New Orleans to begin the practice of medicine as a mere boy he was thought rather a poetic and philosophic young fellow, and he had no very extensive practice at first.

Dr. Hunt's ambition to awaken New Orleans to its opportunity of becoming a medical and scientific center gave Dr. Harrison the opportunity just mentioned to enter the Charity Hospital; so the three forceful and able youths were brought into close and practical relations.

The condition of medical education in the United States was at that time in need of improvement. "The great majority of its physicians had no better medical education than that gained as pupils in a doctor's office, and American medical colleges originated as substitutes for this very inadequate apprentice system. Colleges were neither founded, nor financially aided, nor supervised by a paternal government, as were most European colleges, but were the offspring of private enterprises. In fact, almost every one was a joint stock company, composed of a few ambitious medical graduates. The maintenance of these colleges, including the salaries of the self-appointed professors, was wholly dependent on the number of students and the amount of their fees. Hence, the colleges were forced, in order to survive, to adopt such measures as would tend to increase the number of students."

The Medical College of Louisiana, which was the germ of Tulane University, was just such a joint stock company and was the outcome of Dr. Hunt's enthusiasm and energy. He delivered the introductory lecture in September, 1834, and was appointed professor of anatomy and physiology and elected dean. His associates were Dr. Charles A. Luzenburg, Dr. J. M. Mackie, Dr. T. R. Ingalls, Dr. A. H. Cenas, Dr. E. B Smith, and Dr. Warren Stone, who was given the demonstratorship of anatomy in the place of Dr Harrison, who was deterred from serving on account of ill-health.

In the first session eleven students were graduated, but the numbers increased through the persistency and the excellence of the faculty. The requirements, however, were not very great. Attendance at two annual sessions of four months each was required, and, as students could enter very late and leave very early, there were instances of cases in which little more was required than one's presence, payment of the entrance fees, and attendance at the final examinations; so the early standard of the college was no higher than that of its contemporaries. Although a third year of practical experience in a doctor's office was formally required, certificates of such study were frequently worthless.

Dr. Chaillé, of the class of 1853, says of the regulations at that day: "I myself was graduated in 1853, only seventeen months after opening a medical book for the first time, and, to prove how very little was then required, I was graduated, as were no doubt many others, by the unanimous vote and with the congratulations of the faculty, and no question was ever asked as to how long I had been a student of medicine."

Until 1868 every candidate was examined by every professor on the same day, one professor following another, and each occupied so little time that in about an hour and a half all the examinations to which any one student was ever subjected were completed. These hasty examinations were exclusively oral and were never preceded by any reports from laboratories or any other source, as to the amount and efficiency of any work done by the student. Brief as was the examination of every professor, part of his time was often devoted to kind inquiries as to the welfare of the student and his family.

From 1834 to 1867 the Medical College of Louisiana never had more than eight or ten teachers, instructing in only eight or nine branches of medicine and in only two laboratories; but the men whose names appeared on the first faculty, as well as others who for many years worked together, gave an impetus to the study of medicine that the mere routine work of text-books and laboratories often lacks; and no better reminiscence of the early days of the Medical School can be given than by recalling the personal characteristics and the life-work of Dr. Hunt, Dr. Stone and Dr. Harrison, as well as their distinguished associates.

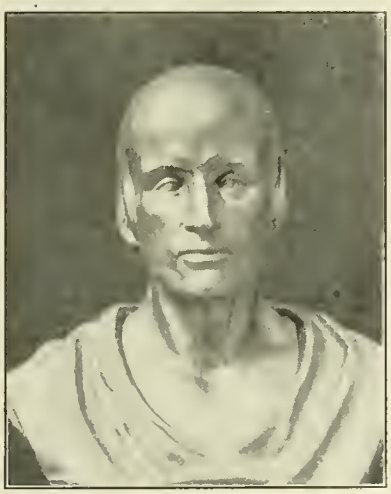
Dr. Harrison, not finding the hospital work wholly to his taste, gladly accepted the chair of physiology and pathology in the Medical School and resigned from the hospital in favor of his powerful young assistant, Warren Stone; he became attending physician, while he threw his whole energy into physiology. In a few years he had read, translated, examined, and experimented with every branch of science connected with the subject of physiology, and had prepared a course of lectures that attracted the better class of students. So elaborate in scientific and philosophical detail were these lectures that it required an ample preliminary education to understand them, but that very requisite raised the standard of the students' ambitions, and Harrison's reputation and popularity drew many men to the college.

In 1844 Dr. Harrison published in Philadelphia a valuable book, "The Nervous System,"

and in 1845 he became one of the four editors of the *New Orleans Medical and Surgical Journal,* founded in 1844. He was in the prime of his professional activity and at the center of the advanced medical work of the South when he was taken ill and, in spite of travel and rest, died in 1849 at the age of forty years.

Dr. Harrison was small and refined, while Dr. Warren Stone was a huge, rugged man. The latter's unusual height and weight were intensified by his massive head and by the imposing strength of his features, which, though not handsome, were striking and impressive. He, the giant, and Dr. Harrison, the diminutive man, were the best of friends, differing from each other only in size.

Dr. Stone filled the position of demonstrator, lecturer and professor of anatomy during the first few years of the College's existence, and in 1839 was made professor of surgery, which chair



J. H. HARRISON, M.D.

WARREN STONE, M.D.

he held until the year of his death, 1872. From Dr. Charles J. Bickham, Dr. Stone's ward student in 1855 and 1856, we get the flavor of personal reminiscence concerning his hospital work. "He was methodical and industrious, quick in perception, prompt in the execution of what he perceived to be his duty. His resources were unbounded. He never seemed to be taken unawares. His knowledge, tact and ingenuity were equal to the occasion and he never appeared so cool, self-possessed and grand in his whole nature, physical, mental and moral, as in the midst of alarming emergencies in surgery. In the midst of the most complicated and difficult operations, cool, calm and collected, he would promptly do his duty, at the same time lecturing and explaining to those present the minutest practical details of the case. In truth, every visit to the hospital was an ovation to him, which he acknowledged with becoming modesty, but which served doubly to inspire him. In his surgical clinics he taught the principles of drainage in suppurative arthritis, in hepatic abscess, and in pyothorax. In the surgery of arteries he was an expert and was among the first to cure aneurism of the vertebral artery. In November, 1849, he operated successfully on a case of traumatic aneurism of the vertebral by incising the sac, turning out the coagulum, and controlling the artery by a graduated compress. For fourteen years at the Charity Hospital he operated without an anesthetic; but, although the *New Orleans Journal,* as well as others in the country, decried the use of ether, with its toxic powers and its patent, Dr. Stone welcomed it and showed his independence in February 25, 1847, by amputating the thigh of a man under ether. When chloroform was introduced, however, it became his favorite anesthetic and it is largely due to his professional teaching that it is the preferred anesthetic of Southern practitioners.

The Maison de Santé, one of the earliest private hospitals in America, was founded by Dr. Stone in connection with Dr. Wm. E. Kennedy in 1839 and twenty years later became Stone's Infirmary, where he continued his extensive work in general surgery Although it was a private hospital, it was the established rule of the house never to refuse professional services on the score of poverty, and the charity dispensed by Dr. Stone at the Maison de Santé, according to one of his colleagues, "was of itself sufficient to elevate its author to that high rank among philanthropists which his well-known abilities had long since commanded in his profession."

As consulting surgeon to the Hôtel Dieu, Dr. Stone served for twenty-three years. The most important part of his professional life and work, was, however, his connection with the Medical Department of the University of Louisiana, which he served for thirty-eight years, from January, 1835, to April, 1872, when he resigned. As a teacher of surgery he was discursive rather than systematic, but though he was apt to be

led off the beaten track by an interesting case in hand his lectures were always instructive and convincing, especially to graduates.

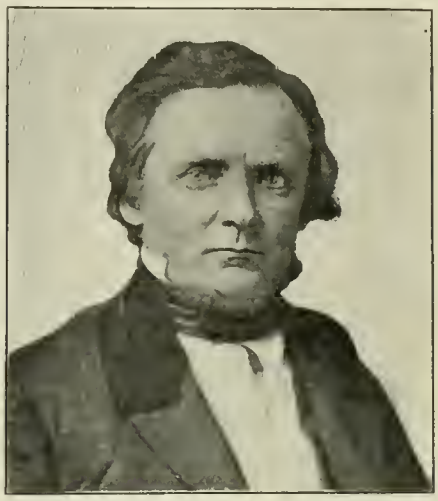
Dr. Stone was not as well known by his writings as by his works, being reluctant about expressing himself in print. All the more important contributions that he made were published in the *New Orleans Medical and Surgical Journal,* and were pithy and convincing; but it was as a man, noted far and wide for his great wit and wisdom, and in his relation to the individual patient that he was so widely and affectionately known. Professor Samuel D. Gross once called him "The Great Commoner of Medicine," and so great was his name in his city and so deep was the love of the people of New Orleans for him that, when he died, December 5, 1872, the District Courts were adjourned as a mark of respect, the flags of the shipping stood at half-mast, and many of the stores on the main streets were closed at the time of the funeral.

Dr. Hunt, to whom the growth of the Medical College was his greatest interest, threw himself into the work of placing it on a solid foundation as a permanent State institution, giving up much of his large practice for that purpose. In 1845 he accomplished his end. When the new constitution for the State was adopted a clause was put into it establishing a State University and constituting the "Medical College of Louisiana" as then established as the Medical Department of the University. In 1847 Louisiana permitted the medical faculty to erect the first building it ever owned on a lot belonging to the State, on

THOMAS HUNT, M.D.

two conditions: First, that the members of the faculty should give their services to the Charity Hospital without pay, instead of being paid therefor, as had previously been the case; and, second, that one beneficiary student from every parish should be admitted annually for the next ten years; and this was extended in 1853 to ten years more. The first condition has always been fulfilled and the second condition was fulfilled for at least twenty years. The number of students increased from thirty-eight in 1843 to one hundred in 1846.

In 1844 a large amphitheater for surgical operations and for lectures was erected in the Charity Hospital at an expense of $5,000, half of



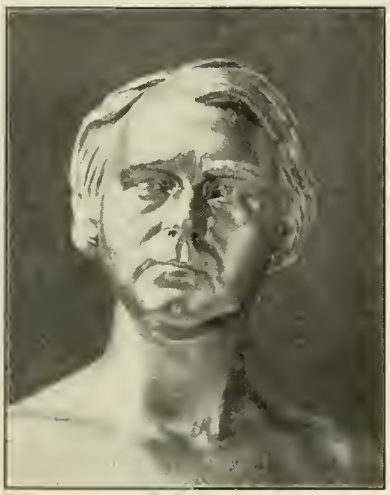
JOHN LEONARD RIDDELL, M.D.

which was contributed by the faculty. Various endowments and grants, besides the use of the lot and buildings, had contributed by 1859 about $83,500; the number of students had increased from 100 in 1846 to 276 in 1858, and this increase would have been greater but for the fact that during these eleven years there occurred five of the worst epidemics of yellow fever that ever desolated New Orleans. In 1863 the Medical School had matriculated 4,119 students and had at the session of 1860-1 over 400 students. But when New Orleans was captured in 1862 by the United States Navy and Army, the Medical Department was obliged to suspend until the session of 1865-6.

Dr. Hunt, whose fortunes were shattered and whose health was feeble, left New Orleans for a time and went to Havana, where his reputation brought him a large practice, despite the fact that at fifty-four years of age he was obliged to learn a new language, and where he received a degree in the name of the Royal University of Havana.

In 1865 the Medical Department reopened its doors. The building had been occupied by the United States military and one wing used for a colored school in charge of the Freedman's Bureau was terribly dilapidated; the library and apparatus were damaged and the treasury was empty. But on his return from Havana Dr. Hunt interested himself in obtaining from the Legislature of 1866 a new appropriation of $25,000 for the immediate needs of the College, and devoted himself to repairing the fortunes of the institution. The students came back, the faculty

was reorganized, but Dr. Hunt's efforts were terminated by his death March 20, 1867. The Medical College lost one who had been a man who had unselfishly devoted his energies to the practical advancement of medical science. He was an attractive lecturer; but his fame as an orator is only traditional as he published little.



A. C. LUZENBERG, M.D.

and the address which he delivered on "The Utility of Science," when he became dean, was one of the few that were printed.

Those who were chiefly instrumental in founding and in maintaining the college were Drs. Hunt, Luzenburg, Cenas, Harrison and Stone, aided as early as 1836 by Drs. James Jones and J. L. Riddell.

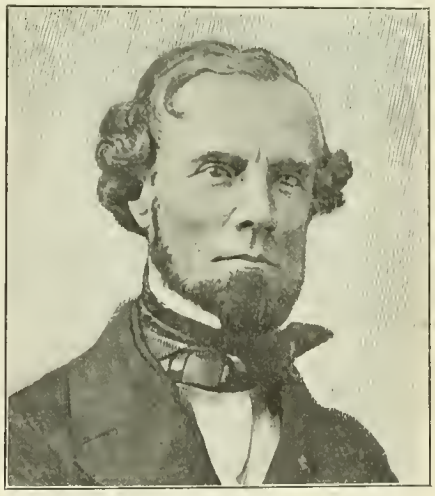
The longest active services were those of Dr. Stone, thirty-eight years; Dr. James Jones, thirty-seven years; Dr. Riddell, twenty-nine years; and Dr. Cenas, twenty-seven years.

Dr. J. L. Riddell, who held the chair of chemistry until his death in 1865, was born in 1807 and came of a family that traced its lineage back through Scottish and Irish descent to the eighteenth century. He was not merely a professor of credit to his university, but also a naturalist of international fame. He was engaged in a scientific exploration of Texas when he wrote a "Symposium of the Flora of the Western States." He discovered many new species of plants and a new genus bears his name, *Ridellia*. He was an expert microscopist in the days of the instrument's development, and as the inventor of the binocular microscope is given due tribute in that literary mausoleum of the world's workers, the "Encyclopedia Britannica."

Dr. C. A. Luzenburg, though dying when a young man, was unquestionably a man of genius. He came to New Orleans at the gloomiest time of its medical history, a poor and friendless youth, and struggled ardently to bring to life a spirit of medical interest at a time when the medical societies of the city were lying dormant. Owing to his indefatigable efforts a new society was formed—the Medico-Chirurgical Society of Louisiana. It held brilliant meetings at which the French and English physicians of the State met to exchange views, and it was undoubtedly the spirit of these meetings that caused a college building to be erected for the Medical School and that started the *New Orleans Medical and Surgical Journal*. So it was indirectly from Dr. Luzenburg and his brisk though soon spent energy that the men who outlived him received their impetus to found this medical school, which later formed the nucleus for the University of Louisiana.

The revivification of the Medical Department in 1865 was due to Dr. Richardson, who then became dean, aided by Drs. Stone, James Jones, Cenas and Hunt, and soon thereafter reinforced by Drs. Bemiss, Chaillé, Joseph Jones, Hawthorn, Mallet (now of University of Virginia), Lewis and Elliott.

Joseph Jones, M.D., LL.D., was born in Liberty County, Ga., in 1833, and was graduated as Doctor of Medicine from the University of Pennsylvania in 1855. He entered practice in Savannah, Ga., and it was not long before he was elected Professor of Chemistry of the Medical College of that city. Almost four years later he was elected to the same chair in the Medical College of Georgia. During the War he served as full surgeon in the Confederate army. Dr. Joseph Jones, a professor of chemistry in Nashville, Tenn., was in 1868 asked to take the chair of chemistry, to which clinical medicine was subsequently added at his request. He served for twenty-eight years, forming close friendships with the students and writing profusely. Three years before his death he was relieved at his request of the clinical teaching in the Charity Hospital, but continued his work and his practice in spite of failing health until his death in 1896. He strengthened the reputation of the



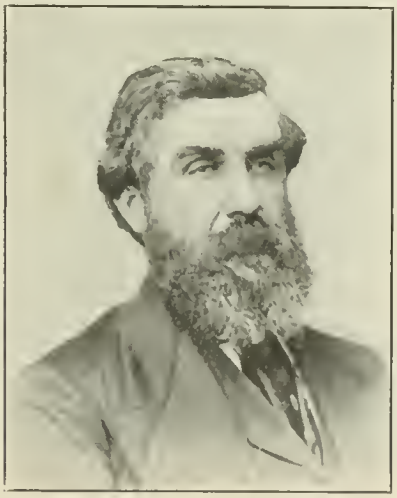
JAMES JONES, M.D.

medical department as a center of learning by his profound, erudite and vast contributions to the literature of medicine.

Dr. Samuel Merrifield Bemiss, who held the chair of theory and practice of medicine from June 15, 1866, to the day of his sudden death

AUGUSTUS H. CENAS, M.D.

from apoplexy, November 17, 1884, was not only a celebrated physician, but a man of culture, refinement and great literary ability. He was the seventh son of Dr. John Bemiss, a great physician and a great theologian. Born in 1821 at Bloomfield, Ky., he grew up in the open country



S. M. BEMISS, M.D.

and laid, through his outdoor sports, a splendid foundation of health and vigor. His early education was superintended by his father, and his medical education was obtained from his uncle, then from the University of New York, from which he received his doctor's degree in 1845. From 1853 to 1863 Dr. Bemiss lived in Louisville where he had a lucrative practice. From 1863 to the day of Lee's surrender in April, 1865, he served in various appointments as a Confederate surgeon in charge of hospitals. When he returned to Louisville he was elected professor of physiology and pathology in the University and entered again on a large practice. In the spring of 1866, however, he accepted a call to the chair of theory and practice of medicine and clinical medicine in the University of Louisiana. The affection and esteem of the citizens he left were replaced by those of the students and friends whom he made in New Orleans. He was an impressive, careful and interesting lecturer. As a clinical lecturer he was punctual in his wards and took the greatest pains with his students in teaching them the art of diagnosis, in which his superiority was very notable, and in making them self-reliant. In 1868 he became senior editor of the *New Orleans Medical and Surgical Journal*, and enriched the medical literature of

T. G. RICHARDSON, M.D.

the South by his contributions, his style and his medical perception. One of his greatest and most ardent undertakings was in connection with the great yellow-fever epidemic of 1878; he was appointed chairman of the commission for investigating its origin and spread, and was connected with the evolution of the National Board of Health and was a member thereof. His sudden death from apoplexy, November 17, 1884, cut him off at the age of sixty-three in the midst of his professional and editorial work.

A brief summary of Dr. Richardson's life, as a graduate of medicine, is requisite to an impartial estimate of the forty-four years of service given by him to the profession. Impelled by unselfish patriotism he gave for three years (1862-65) his great learning and skill as a surgeon to the soldiers of the South, to the greater credit of its medical service. As an educator he devoted thirty-eight years of active service to the instruction in anatomy and surgery of many thousands of medical students, to all of whom he

gave knowledge, inspiring them with regard for and devotion to the profession. During his thirty-eight years' service as a teacher of medicine he served three medical colleges, increasing their repute and efficiency. He gave to the Medical Department of Tulane University twenty-eight years of active service as professor, and twenty of these years as dean; during this service all the debts of the Medical Department were paid; he enriched its museum with the products of his own skilful labor; he guided the college safely through the darkest period of its history, and he greatly increased its usefulness and reputation. While administrator of the University he secured for the medical department and therefore for medical education and the profession very valuable benefits. While president of the American Medical Association he ably maintained professional reputation and dignity. He was the most influential founder of the State and Parish Medical Societies; and as a member of many other societies gave to them all greater influence and reputation. For seven years he edited medical journals and for many more years contributed to medical literature, always to the benefit of his profession. For twenty-eight years he was one of the visiting surgeons to the great Charity Hospital and no one did more than he to heal the many ills and assuage the many sorrows that always fill it. During forty years he practised surgery and medicine and inspired thousands of laymen with greater confidence in the medical profession as well as with respect for it.

Under the direction of these men and with the determination born of undaunted courage, the Medical Department made great strides to keep abreast of the advancing methods of the day. In 1887 by the valuable aid of the Tulane administrators and of Professor Ordway there was added a laboratory of practical pharmacy, with attendance therein obligatory on pharmacy students only; in 1889 the faculty established a microscopical laboratory for medical students, but a course therein was not obligatory until 1893. In this year not only were the anatomical and microscopical laboratories very much improved, but two new laboratories of chemistry and of operative surgery were established and attendance at these laboratories was made obligatory. Comparing past and present in the above particulars, it is found that, while formerly only nine different branches were taught and special courses given in two laboratories, now sixteen different studies are taught and courses are given in five laboratories. Formerly there were only eight or ten teachers, now there are forty-one; and yet more teachers are needed to teach other specialties.

The close of the war in 1865 found the college with many old books, but without catalogue, index or house-room for them; nor could a proper room be provided until the new building was completed in 1893. For several years thereafter the attention and funds of the faculty were more urgently needed for other improvements than the establishment of a library; but this was done in 1896 and it has since been annually improved. Now the college possesses, in addition to some 1,500 duplicates and comparatively useless books in an annex, a well-organized and valuable library of reference, consisting of over 3,000 properly accessioned and card-catalogued volumes. While most of these books have been donated by members of the faculty, about $2,000 has been expended in the purchase of others. This library is of great advantage to students and teachers. Another indication of progress is found in the facts that even until 1885 the medical faculty never had on its pay-roll more than five persons, while it now has twenty-seven; and, although the number of students is not twice as many as in 1885, the annual expenditures of the faculty have quadrupled. While the professors, graduates and students of the college

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have most notably contributed to the great usefulness and repute of the Charity Hospital, the welfare of the medical department is still more dependent on the use of this hospital for the educational purposes that are secured by law to the college. Hence, every improvement of the hospital promotes the progress of medical education. These improvements have been great and numerous, but reference will be made only to the three that have most obviously contributed to the educational advantages of the Medical Department.

Two admirable buildings were erected in 1892 for out-door clinics, and the result has been that the number of the sick seeking relief at the hospital and educationally utilizable has increased from less than 10,000 to 30,000 annually. In 1895 a new amphitheater, one of the best in the world, accommodating more than 400 students, was erected on the site of the old amphitheater at a cost of $44,130, of which $3,000 was contributed by the faculty of the Medical Department. The benefits to the diseased and injured

and also the educational advantages of this building are incalculable. In 1899 the Milliken Memorial Hospital accommodating over 200 afflicted children was erected as an annex to the Charity Hospital. For this unexcelled building the profoundest gratitude, not only of the people of this city and State, but also of the faculty of our Medical Department, is due to Mrs. D. A. Milliken.

Little more can be done than to allude to various other causes that have influenced the prosperity and educational progress of the Medical Department. But, in addition to the influence of causes already indicated, such as "hard times," yellow fever and quarantines, medical examining boards and the Charity Hospital, there are two others, politics and donations, that have had most notable influence.

The Civil War, the result of politics, influenced prosperity far more than any other cause. From 1834 to 1859 the number of students increased from 11 to 276 by normal growth. There then occurred during the next three years an abnormal increase to 404 students in 1861, due to the political and sectional hostility that induced Southern students to abandon Northern colleges. War came, and patriotic students became soldiers in such number that the 404 students of 1861 were reduced to only 94 in 1862. The doors were then closed until 1865, for, during the three intervening years, all of the students and all of their teachers, not too old for service, were Confederate soldiers.

From 1865 to 1885 the number of students ranged from 230 to as few as 105 in 1875, about which time culminated the tyrannical and monstrous evils of the "reconstruction government," based on the negro, the carpetbagger and the scalawag and upheld by the victors for the spoliation and humiliation of the vanquished South. A patriot, who lost in the battles of the South both a leg and an arm, had, none the less, enough of him still left to lead those who were determined at every risk to supplant a most vicious with a decent government. This was at last accomplished, and the people of this State, the young as well as the old, should never forget the immense debt of gratitude due to their leader, Francis T. Nicholls, who, in 1876, became the governor, and is now chief justice of Louisiana. Despair was soon replaced by hope, and prosperity began to return to the State and to the Medical Department.

From 1875 to 1901 the number of students gradually increased from 105 to 426, but it required twenty-eight years to recover from the abnormal conditions resulting from war and politics, for it was not until 1886 that the college had fairly regained the number of students that had attended in 1858. During the many very trying years that the very existence of this college was at stake, the members of its faculty gave to it devoted and skilled labor for the remuneration usually paid to very ordinary clerks.

In 1845 a constitutional convention, influenced chiefly by members of the medical faculty, ordained the University of Louisiana, and adopted as its medical department the Medical College of Louisiana, the parent of the present college. Not until 1847 did the Legislature execute the convention's decree to organize the university. This began its career with the college as its sole department. The medical faculty surrendered its building to the law department, then first organized, and was given a much larger building on a contiguous lot, where now stand the Crescent and Tulane theaters. This building cost the State $40,000, and, in addition, the State gave to the medical department, from 1850 to 1858, $43,500 for museum, apparatus and repairs. Of the $80,500 thus contributed by the State war and time have left nothing except the lot, now the property of Tulane University, and the museum still the property of the Medical Department.

The Tulane University of Louisiana derives its name from the following facts: Paul Tulane, of Huguenot descent, a resident of New Jersey, accumulated in New Orleans a large fortune as a merchant of clothing. Having experienced the need of a better education, he, unmarried, childless and advanced in years, donated in 1882 over a million dollars for the higher education of "the white young persons in the city of New Orleans," provided that the laws of Louisiana should be so changed that the property donated (real estate in New Orleans) should be exempt from taxation. This was finally accomplished, but with delay and many legal difficulties, and, to accomplish it, it was deemed best to transfer to the Tulane Administrators the University of Louisiana and thus to found the Tulane University of Louisiana. This was done in 1884 by the Legislature of the State, and this law was ratified in 1887 by vote of the people and confirmed by the State Constitution of 1898.

In 1884 the University of Louisiana became the Tulane University of Louisiana. Since then the administrators have contributed in many ways to the welfare of the Medical Department, and if they have failed to do far more that might well have been done, this has been due to the imperative need of all of their inadequate income to establish an efficient collegiate department.

Since 1886 the medical faculty, besides paying all of the constantly increasing expenses, has appropriated to improvements $17,500, derived from fees that, in less fortunate years, were all used to remunerate inadequately the members of the faculty.

In 1894 Dr. A. B. Miles bequeathed to the Medical Department $10,000, a pathetic reminder of his devotion to his Alma Mater, and a very sad and inadequate substitute for the very valuable services that death deprived him of the power to confer as a most efficient and popular professor of surgery.

The fifth and only other financial aid given to the college was by far the most important ever contributed. Without it the educational progress

that has been and will yet be made would have been impossible. May 9, 1891, the wife of Dr. T. G. Richardson, valued professor, 1858 to 1889, honored dean, 1865 to 1885, donated a sum sufficient to erect a new building, greatly superior in all respects to the old one, and especially in providing all of the laboratories that have become indispensable to medical education and that the old building could not supply. A sufficient sum to equip these admirable laboratories was also given. The administrators took possession of the lot assigned by the State in 1847 to the Medical Department, and, in its place, provided, at an expense of $35,000, a much ampler and better site for the new building. This was completed and occupied in 1893, and will continue, for very many years to come, to be exceptionally well adapted to its purpose. From this donation of Mrs. Richardson will very surely result the inestimable benefits of a better education to thousands of medical students, and, through them, relief to millions of those whom the anguish of disease afflicts and the shadow of death menaces.

Blessed is the university that has possessed such benefactors as Ida A. Richardson, Josephine L. Newcomb and Caroline Tilton; fortunate is the city that can add to this trinity such other benefactors as Deborah A. Milliken and Margaret Haughery, and discredited should be the city whose men may fail to honor these public-spirited women or may fail to imitate their beneficent examples.

THE CRAIG COLONY PRIZE ESSAY—SERO-THERAPY IN EPILEPSY.

BY CARLO CENI, M.D.,
OF REGGIO-EMILIO, ITALY;
DOCENT OF NEUROPATHOLOGY IN THE UNIVERSITY OF PAVIA; MEDICAL INTERNE IN THE PSYCHIATRIC INSTITUTE OF REGGIO-EMILIO.

(Concluded from page 442.)

Case IX.—Zelinda Brus eight years old, of delicate constitution. Birth normal. Her mother, during her pregnancy, suffered, as the result of a fright, from convulsive fits of an epileptic character. They were frequent and intense, especially in the last four months of pregnancy. After delivery the convulsions diminished by degrees, until at the end of a year they had disappeared entirely. She then entered into a state of melancholia, which lasted more than six years.

The child soon showed symptoms referable to the diseased state of the mother during gestation. The baby was scarcely five months of age when, without any determining cause, she was taken with a severe convulsive fit, which lasted about half an hour. The attack was preceded by a loud cry and a strong general trembling. After this fit the girl passed into a convulsive state which lasted more than two months, during which time the fits followed each other in series of four or five every day, with short intervals of a few minutes.

This dangerous state of things was followed by a period of almost four years, during which the convulsive fits appeared much more rarely and with intervals of one or two months. But in the spring months they grew again considerably worse, preserving the same individual character as before.

After a long period of peace, about three years ago the convulsive fits again followed each other frequently, again coming in series, four or five every day, with short intervals, especially in the morning hours.

The girl was always lively and intelligent, but peevish and extraordinarily spiteful, particularly in late years. She always showed little affection and respect toward her parents. She often ran away from home, exposing herself to every kind of danger. Of late she has amused herself by breaking everything that comes within her reach, and often, without any cause, would rush aggressively at her companions, so that it became necessary to confine her in our institution. This was in May, 1900.

The girl presents no physical anomaly. The pupils are equal and react well to light. The tendon and cutaneous reflexes are exaggerated, and the muscular tone in general is increased. There is nothing remarkable in her sensory organs. Her weight a few days after admission was 20.700 kilograms.

On the 15th of June, 1900, the treatment by the serum-injections was begun. We began with a dose of 3 cubic centimeters, and we used the blood-serum drawn from the same epileptic who had furnished the material for the patient described in Case VII.

On the day of the injection Zelinda showed no reactionary symptoms. She was good-humored, had a good appetite, and only five fits occurred. But on the following day she felt distaste for food, suffered from slight headache, and instead of being fretful and active as usual, she was dejected and silent, a state which had not previously been observed in her. The fits grew much more numerous, having occurred twelve times in twenty-four hours. The temperature remained normal, but the pulse was frequent and weak. On the following day the girl had quite recovered.

On the 18th of June the injection was repeated with the same dose as before. She looked dejected and confused a few hours after the injection. The pulse was more frequent than usual and the temperature toward evening reached 38° C. No convulsive fit occurred that day. However, the girl suffered from much confusion of the mind, with slight symptoms of paresis of the lower limbs, attended by a remarkable increase of the tendon reflexes. All these phenomena soon disappeared, and on the following day the girl was in her normal condition. On the 19th the convulsive fits recurred nine times.

On the 22d of June we made another injection, again with the dose of 3 cubic centimeters. No noteworthy symptoms resulted. The temperature was normal and the fits came with intensity and frequence. On the day after the injection the only change noted was an exaggeration of her usual restlessness.

On the 26th the injection was repeated, but with the dose of 4.5 cubic centimeters. A few hours after the injection the girl looked dejected and sleepy. The pulse was weaker and more frequent than usual. The temperature rose to 38° C., in the night reaching 39° C.

Let us remark once for all that at the point of injection no reactive effect was ever observed.

On the 27th the condition of the patient rapidly improved. The temperature, which all day had been 38° C., returned to normal toward evening. The girl, however, was very much dejected all day, with short periods of great motor excitement, during which she made such disorderly movements as to suggest chorea. In these last two days there were no real convulsive fits.

On the first of July we injected 5 cubic centimeters of the same serum. It was tolerated without great inconvenience. The little girl was only more restless than usual. The fits followed each other as frequently and intensely as ever. The weight was 19.600 kilograms, a decrease of more than one kilogram.

Afterward, in the month of July, five injections of the same serum were given in progressive doses. At the last injection, performed at the end of the month, we reached 10 cubic centimeters at a dose without Zelinda presenting any trouble worth noticing. She was constantly good-humored and gave no sign of entering into the state of depression which followed the first injections. Her general condition was the same as before the treatment. The convulsions, however, came more frequently than formerly, occurring from five to ten times every day. She was still peevish, spiteful and disorderly. She weighed 20.500 kilograms.

August: As the epileptic manifestations, instead of getting better, get worse, in this month the serum injections are interrupted. However, she continues in the severe convulsive state of the preceding months. Besides, the motor crises are more frequent than formerly, reaching several times the number of twelve and more in twenty-four hours. Her weight is 20.300 kilograms.

September: Still no injections. The girl continues in the same severe condition as during the two preceding months, being very restless and having frequent convulsions. Her weight is 21.500 kilograms.

October: As a last and definitive experiment we begin injections again. Instead of employing the same blood-serum as was used previously, we now have recourse to the blood-serum obtained from another epileptic, as seriously ill as the first one. We again employ increasing doses. The girl bears the injections well, and presents no mediate disturbances. The dose of 10 cubic centimeters is soon reached, and in this month a total quantity of 32 cubic centimeters of serum is injected.

Although the little patient did not react to these injections with acute and direct phenomena, her general condition became worse again by degrees, with great increase of the motor crises. Towards the middle of the month she went into a severe convulsive state, having twelve to fifteen fits in the twenty-four hours. On the 26th of the month she developed a total paraplegia which came on suddenly. The girl was stupid in expression. She uttered but a few words and then with a peculiar hesitancy of speech. She had involuntary passage of urine and a copious salivation. The pupils were unequal and reacted feebly to light. The general reflexes and particularly the patellar ones were extremely exaggerated. Her weight went down to 19.700 kilograms.

This state of affairs lasted until the first days of the following November, when a general improvement began. The paralysis of the lower limbs disappeared rapidly, first on one side and then on the other. By the middle of the month the girl could walk without being supported and only presented a slight degree of paresis, but severe convulsions again occurred frequently.

In November, and especially in December, the motor crises also were remarkably diminished in number compared to what they were in the preceding months. The weight went up to 20 kilograms and later to 21.500 kilograms.

In January, 1901, the girl was in about the same condition as she was before the injections. In the whole month she had 147 convulsive fits, but they were not all intense.

In the ensuing months, until the end of May, her general condition remained almost unvaried. The motor crises were about five a day, coming especially in the morning hours. The convulsions have become rather less intense than before. Since the injections were definitively abandoned, the girl has received one gram of bromide daily.

	Diary of the Convulsions.	Weight in Kilograms.
May, 1900	125	20.700
June, 1900	148	19.600
July, 1900	262	20.400
August, 1900	357	20.500
September, 1900	248	21.500
October, 1900	327	19.700
November, 1900	180	20.800
December, 1900	159	21.200
January, 1901	155	20.700
February, 1901	140	20.600
March, 1901	148	21.300
April, 1901	130	22.000
May, 1901	145	21.500

Case X.—Maria I., twelve and one-half years old. She has no hereditary stigmata and never suffered from any important disease. She grew up healthy, showing precocious physical and intellectual development until the age of three years, when, in consequence of a fright through being forced to bathe in a river, she gave the first signs of her present disease. A few hours after the bath she had three fits, evidently of epileptic nature, which followed each other within the short interval of a few minutes. From this time the fits increased in number and severity. For the first two years the convulsions occurred once or twice a month, but then they grew by degrees more numerous, until they recurred four or five times a day, following each other at intervals of three or four days. The patient has now been for about three years in this severe condition, although the bromide treatment in very high doses has been frequently tried.

The convulsive fit is complete. It lasts from ten to twenty minutes with violent muscular shocks. It is always preceded by a feeling of anguish and faintness, attended by an intense and painful contraction in the epigastric region. For some time these auræ have occurred with extraordinary frequency, from three to seven times in the twenty-four hours. But they are not always followed by convulsions, which, as I have stated, present some periods of two or three days' intermission. During the motor crises the girl becomes very cyanotic and often voids urine. The crisis is always followed by confusion and depression, lasting about one hour.

With the increase of the fits the patient's physical development was checked and her intelligence gradually grew more feeble. At the same time an evident change of character was observed in her, and from being good and gentle, she became wrathful, disobedient and spiteful to everyone. She never went to school and does not even know the alphabet. Being incorrigible and having got in the way of exposing herself to danger and to running away from home, she was admitted to this institution.

The patient is of backward physical development. Nothing remarkable as regards sensibility and motility. The reflexes are rather exaggerated. She is not very intelligent. She pays little attention to what happens about her, and answers questions more by signs than by words. Her dress is disordered. Her weight in the months of August and September, 1900, was about 31.500 kilograms.

October 1, 1900: The serum-injections are begun, and the bromide treatment is stopped. The serum is drawn from another epileptic and the total quantity injected in the first month is 48 cubic centimeters. From the onset the patient tolerates the treatment well. Both the motor and sensory crises are reduced in this month to about one-third of what they were in the preceding month. Yet their character is the same as before. The nutrition of the girl rapidly improves, so that her weight increases to 36.600 kilograms.

November: Sixty-five cubic centimeters of serum in all are injected. The motor crises are limited to five, all of which occur in the last week of the month, after about thirty days of complete pause. Meanwhile the girl's temper is much changed. She has grown good and mild. She has a rosy color and looks livelier and more intelligent. She dresses with more care, and spends the day with the sewing-women, for she wishes to learn to sew. Her weight increases to 38 kilograms.

December: The total quantity of serum injected is 80 cubic centimeters and the girl gets on very well. Her weight increases 1 kilogram more. She has five motor crises and two sensorial ones. The crises appear to be less intense and shorter than formerly. The girl behaves in an exemplary manner and looks healthy. Toward the end of the month she begins to go to the school of the institution, where she soon shows herself eager and diligent.

January, 1901: The quantity of the injected serum is 65 cubic centimeters. Her condition remains unvaried. The number of crises is about the same as in the two preceding months. She weighs 40 kilograms.

February: Injected serum 70 cubic centimeters. While the general condition is still very good and the weight reaches 41.500 kilograms, the epileptic crises on the contrary become a little more numerous.

March: Total serum injections reach 80 cubic centimeters. The general state of the patient remains unvaried and the crises recur with the same frequency as in the preceding month. Toward the end of the month the girl has her menses for the first time, although she is but thirteen years old. They continue afterward regularly.

April: The injections are stopped. The girl continues to be as improved as in the preceding months.

May: Her weight is 39.700 kilograms, and the number of the crises remains much smaller than it was before the treatment. She looks like a full-blown, healthy, intelligent girl, quite different from what she was formerly. Now she is looking forward to the time when she is to return to her family.

Diary.

	Convulsions.	Sensorial Crises.	Weight in Kilograms.
August, 1900.....	48	110	31.600
September, 1900...	43	125	31.300
October, 1900.....	14	35	36.600
November, 1900...	5	—	38.000
December, 1900....	5	2	39.000
January, 1901.....	6	2	40.000
February, 1901....	15	7	41.500
March, 1901.....	15	6	39.600
April, 1901.....	10	6	39.800
May, 1901.....	8	5	40.100

A general glance at the histories of the cases of epilepsy in which the new curative method has been tried, quickly convinces us that the great difference in the results in the different individuals constitutes the part of these researches which most demands our attention.

Indeed, if we consider the results so far obtained, we may divide the patients into two well-distinguished groups, viz., those with a positive result and those with a negative one; for, while this method proved very successful in some cases, in others it did not suit at all.

Let us see what patients belong to these two groups and what clinical facts distinguish the ones from the others, during the long period they were under observation.

We must remark first of all that, of our ten patients of different ages chosen expressly from among the severest forms of epilepsy, eight belong to the first group. They are represented by Cases I., II., III., IV., V., VI., VIII., and X., in all of which distinct advantage was derived from the treatment, though in different degrees. Two cases belong to the second group, viz., Cases VII. and IX., in which the serum-injections not only were not beneficial, but were contra-indicated.

Now, I will state the kind and degree of benefit the epileptics of the first group derived from the treatment. We shall see later what clinical phenomena of scientific interest were presented by the epileptics of the second group.

Group I.—Positive Results. Cases I., II., III., IV., V., VI., VIII., X.

In order to distinguish the cases with positive results from those that did not receive the least advantage from the treatment, two principal facts demand attention, viz., the manner in which the patients reacted to the first injections and the nature of the final results. Both of these phenomena were often remarkably different in different individuals. As to the manner in which the patient reacted to the first injections, we observe that some patients accommodated themselves soon and easily, without experiencing the least inconvenience, while others exhibited at first a peculiar intolerance.

The former, although at first unchanged, soon showed a more or less remarkable and progressive improvement. Thus it was with Cases III., IV., V., VI., and X. The two patients described under Cases I. and II., after the first injection, exhibited the phenomena of an acute intoxication which consisted chiefly in a rapid diminution of weight, and in an increase in number and intensity of the motor crises.

One of them (Case I.) exhibited besides in this period continued drowsiness, which was not usual in her. It lasted about five days and was attended with evident symptoms of paraparesis.

The period of accommodation being over, both of these patients entered, in about a fortnight, into the period of general progressive improvement, into which the other six patients of this group passed directly; so that within a month from the beginning of treatment all the epileptics of this group had been benefited. The gradual improvement from the first month, in nutrition and in weight, the progressive and often remarkable diminution of organic disturbances in general, and especially in those affecting digestion and circulation, gave incontestable proofs that these epileptics were undergoing organic modifications that gave promise of great future success.

To give an idea of the enormous influence that the injections had upon the general state of the patients, I will recall the deep modifications that took place in Adolfa C. (Case I.) in a few months. After an initial period of crisis during the accommodation to the first injections, though we had stopped by degrees all the symptomatic drugs she had been taking so long, the patient passed quickly into a state of physical well-being that surpassed all our hopes. The girl soon

gained 6 kilograms. She lost by degrees the habitual cyanosis of the face, her complexion becoming even florid. Her skin grew everywhere soft, bright and rosy, even in the parts that had been covered with a painful erythema. It will be remembered that this erythema had lasted a long time and had resisted all treatment. The circulation became active again; all the severe digestive disturbances disappeared and during the third month of treatment the menses returned, although they had been absent for more than one year. The obstinate insomnia also disappeared in a short time. The girl was like a healthy person.

We have a similar case in Maria I. (Case X.), epileptic for nine years and physically much inferior to the preceding patient. In consequence of the injections a change was so rapidly effected that after four months the girl looked much better and was about 10 kilograms heavier. In the fifth month of the treatment the menses appeared for the first time and have continued regularly.

In Cases VI. and VIII. we may observe still more convincing proof of the extraordinary influence the serum-injections may have in stimulating nutritive change, even to exaggeration. The physical condition of these two little patients (Armida Gib and Albertina Bus) changed so much in a few months that the girls were not to be recognized. In seven or eight months they doubled in weight and, their complexion becoming florid, they looked like healthy persons. The former began to menstruate regularly when twelve years old. She weighed 60 kilograms.

The improvement in general nutrition which took place in all the epileptics of the first group was not always the same in manner or degree. In some patients there was gradual improvement from the onset which ceased after a few months. In others the improvement was more prompt and continuous. The former exhibited pauses and slight relapses; the latter went progressively and steadily forward.

The first mode of improvement is especially characteristic for those patients who attained a certain degree of benefit from the treatment, but then remained stationary, although the injections were continued. The weight that these patients gained during the period of reaction, that lasted from six to seven months, oscillated between 6 and 10 kilograms.

The second mode of improvement, *i.e.*, that characterized by a rapid and progressive gain, was shown by those epileptics who, at least till the present, give us reason to hope for a real recovery. Since the treatment of the first two or three months, in addition to the total disappearance of all epileptic manifestations, they grew from 10 to 20 kilograms heavier, an increase that did not cease even after the treatment was stopped. Cases VI and VIII. gave this result. The former patient has now been more than one year in the state of a perfectly normal person. Before the injections she weighed 34 kilograms. She now weighs 60 kilograms. In Case VIII., the patient, after about six months of general well-being and of total suspension of the epileptic manifestations, had a slight and transitory relapse caused by a bronchitis. She, too, recovered, after the disappearance of the bronchial disturbances.

An idea of the manner of improvement in general somatic functions in consequence of the treatment is given by Case V. In this patient we saw a gradual disappearance, which in time became almost total, of a complication of the severest disturbances of sensibility, motility, general reflexes and of vegetative life.

The quick transformation in the psychic personality of the patients, even of those in whom degeneration and defects in intellectual activity were profound, excites the greatest interest. Even in the severest cases, as for instance in Cases III. and V., we have witnessed a real, though slow, arousal of the psychic powers. The recovery of the intellectual and affective functions was always last, appearing after the physical condition had reached normal or the highest improvement possible.

A forceful example of the influence that serum-injections may have in arousing the intellectual faculties of epileptics is given us by Armida G. (Case VI). This patient entered our asylum when eleven years old. She did not know the alphabet and seemed almost completely demented. In her general state she was like a brute. After a few months' treatment she was able to go to school and proved to be fairly intelligent.

Even in facial expression the patients underwent remarkable changes. This was especially true for Cases II., VI., VIII., and X. As the patients improved physically, they became commonly more active and of more normal appearance. At the same time, they grew more and more orderly, particularly in regard to dress. As to the girls, they showed in time an inclination to dress well, perhaps even better than their rank and age justified.

Generally our epileptics who formerly were tiresome, peevish and even aggressive, became of a milder and more sociable temper and behaved like normal persons. But unhappily these benefits were not always permanent.

In the two patients described in Cases VI. and VIII., besides the rapid improvement in physical and psychic condition, there was a complete disappearance of all epileptic manifestations. In them there seemed reason to hope for a real recovery. But the other six patients, after a few months of more or less remarkable improvement, entered into a new stage, which is probably the beginning of a relapse, though it has not as yet proved so.

The following are the principal characters of the descending parabola of the general condition of these six patients. It proceeds with fairly distinct interruptions.

The increase in the number of the motor crises, though the patients may continue to show for some months a physical and psychic gain, has been in every case the first symptom. In adults this increase generally happened much sooner than in young people. I think that in these latter it may be possible, by continuing the injections, to prolong the improvement. In the older patients, however, the injections soon lose their effective power and are of no use in warding off a relapse. However, in both cases the number of motor crises remains smaller than it was before we began the injections, one and two years ago.

For example: Adolpha Cam. (Case I.), a severe epileptic for many years, had convulsive fits that used to come a hundred or more times a month. These were reduced during the treatment to an average of three or five a month. On stopping the treatment the fits soon increased to about twenty a month. The girl has now been in that condition for more than one year, that is, since she returned to her family.

The same may be said of the lad Paul Rov. (Case II.), whose crises, from an average of fifty and more a month, went down to three or four during the six months of treatment. About two months after the patient had returned home, that is, two months after the interruption of the injections, the number of crises increased again but was still much smaller than at first. This fact is still more evident from the complete diaries of the epileptics who are still under direct observation.

In general, within a few months after the injections

were suspended, we began to observe a deterioration in the physical condition of all these patients, which in the severest and oldest cases was soon followed by a return of the psychic and psychosensorial phenomena.

Neither this new physical deterioration nor the reappearance of the psychic and psychosensorial phenomena has as yet assumed the dimensions of a total relapse. In no patient has the body weight descended as low as it was before the injections; and even the psychosensorial phenomena have not yet attained the severity they had before the treatment.

Case V., that of Pius Rom., who stopped the injections about one year and a half ago, is a pertinent example. For nearly one year the monthly number of fits was from five to six a month, while in the preceding years it was from twenty-eight to thirty; the weight is 6 kilograms greater than it was before treatment and the psychic state is much better than before. The patient still has periods of mental confusion attended with hallucinatory phenomena, but they are short, transitory and less intense than previously. He is fairly orderly and has given no sign of falling again into the brute state he had long been in before the treatment and in consequence of which he had been shut in the department of the filthy.

We may say the same of all the others; for instance, of Adolpha Camp., whom we have mentioned in speaking of the motor crises. This patient, having returned home in consequence of the remarkable improvement gained through injections, suffered some months later from an increase of the fits. But the manifold psychic and psychosensorial phenomena that first had caused her to be confined in this institution have not as yet returned.

Therefore, we may say that even in the cases in which the benefits obtained by serotherapy, consisting in an improvement in the general condition of the patients or in a more or less remarkable diminution of all epileptic manifestations, are only transitory, they are none the less of sufficient duration to commend the treatment to general consideration.

Group II.—Negative Results. Cases VII. and IX.

Two cases belong to the group of negative results, Cases IX. and VII. These patients not only did not give any sign of improvement after the serum-injections, but grew worse physically and mentally. Both of these epileptics reacted to the first injections in the same manner as two of the cases belonging to the group of positive results. In passing through the period of accommodation to the treatment, they grew worse, especially as to the epileptic phenomena. They gave, however, a very different final result from those of the group of positive results. For in these latter it was a question of a transitory crisis of accommodation with acute phenomena followed by a state of general benefit, while the former gave evidence of a slow progressive intoxication which was characterized by an increase in number and intensity of the epileptic phenomena.

Charles M. (Case VII.) got so slowly worse in the first week of treatment that we hardly perceived it. He seemed to be unaffected by the injections. In the second month of treatment, however, he began to exhibit a slight diminution in weight and an increase in the epileptic manifestations.

Zelinda Br. (Case IX.) after the first injections soon developed what I call a crisis of accommodation. It had the characters of an acute and alarming intoxication with elevation of temperature and a rapid increase of the epileptic phenomena, especially of those of psychic nature. But even in this case the acute phenomena soon disappeared and the little patient, after a few weeks of peace, during which her general condition was the same as before treatment, grew worse. Her weight diminished and the epileptic crises increased alarmingly.

On suspending treatment these two patients by degrees returned to their original state. Evidently, therefore, the injections had been the direct cause of all the disturbances. I will not speak now of the importance that these negative results have from the scientific point of view. But I will observe that from the different and contrary manner with which patients react to injections we may draw important prognostic points as to the final issue of this treatment in epilepsy.

I have already tried to call attention to the remarkable difference existing between the quick, imposing, progressive increase in weight of the epileptics considered as recovered, and the slow, interrupted and limited way in which the weight increases in those patients who only improved. As just observed, the epileptics who received no benefit from the treatment (Group II.) not only never exhibited an appreciable increase in weight, but when the injections were continued they lost in weight. These three peculiar modes of reaction have preserved their distinct characters so constantly that we may, perhaps, depend on them in making a prognosis, though my observations are perhaps too limited to permit inferences of a general nature.

Let us see what are the causes of such different and contrary effects in the beginning as well as in the final issue of the treatment; and whether any clinical facts or anamnesic data in the individual cases can be regarded as helpful in prognosis.

Now the question arises whether the causes of such different and opposed modes of reaction on the part of the patients suffering from epilepsy and undergoing the same treatment exist in the subject himself or in the epileptic who furnishes the material for the injections.

We can only have an entirely satisfactory answer to this question in the light of further observations, and especially observations on younger subjects, who have furnished the most decisive and interesting results from every point of view, both practical and scientific. Still I think we can even now obtain some data from the actual results before us as evidence. It certainly seems as though the different and opposite results so far obtained have their source in the organism of the patient injected and not in the organism of him who furnished the serum.

Here are briefly the facts leading us to this inference. First it must be remembered that our epileptics, though they all were treated in accordance with the same principle, underwent two methods of treatment which, in appearance, at least, were different. Some patients received injections with serum drawn from the blood of other epileptics, while in others auto-serotherapy was the method. In Cases III., IV., V. and VII., this latter method was employed. The results were good only in the first three cases. In these there was marked improvement without the least inconvenience. But in the fourth case (Case VII.) it was quite different, for the patient grew progressively worse, the weight diminishing and the epileptic manifestations growing considerably worse. He exhibited none of the acute phenomena observed in some other cases, but continued for some months to get slowly and progressively worse. We may then suppose that the individual organic condition of this patient could not tolerate an artificial increase of the toxic principles already circulating in his organism and that this increase constituted the most direct cause of the deterioration.

Later we tried in this patient injections of serum derived from other epileptics, but his condition again grew worse and worse. It is then evident that the cause of the negative result in this case is to be looked for in the patient himself.

We arrive at the same conclusion and perhaps in a still more evident way, when we compare the results in the Cases VIII. and IX., in which the injections were of serum drawn from the blood or other epileptics. These two patients were girls of about the same age, degenerated physically and severely epileptic. For two consecutive years the fits were intense in both, and occurred 100 and more times a month.

Now these two patients were almost contemporaneously subjected to injections of blood-serum drawn from the same epileptic. From the beginning they gave very different and contrary results. The first, Albertina B., entered soon into a state of progressive well-being, which was marked by a quick diminution and then by the complete disappearance of all epileptic manifestations and later by great increase in weight. On the other hand, the second, Zelinda B., reacted to the first injections with alarming symptoms of an acute intoxication (elevation of temperature, great depression followed by psychomotor excitement, severe confusion of the mind, etc.). She entered later into a slow and progressive period of getting worse in her general condition, with diminution of weight and a great increase of the epileptic crises. After about two months she bade fair to enter into a continual epileptic state.

The evident contrast in these two girls of the effects of injections with blood-serum of the same origin shows, I think, that the peculiar condition of the patient constitutes the chief cause of the different final issue.

What, then, are the causes leading to such contrary results? In several important ways the history of the patient helps us answer this question. My studies have convinced me that between certain anamnesic data and the final issue of the treatment there are constant and interesting relations.

The hereditary nature of the disease, the age of the patient at the time of its appearance, and its duration before treatment was begun are the important points.

Thus of our patients, the ones in whom the result was negative were cases of hereditary epilepsy. The two negative cases are that of Zelinda B., nine years old (Case IX.), who, born of an epileptic mother, exhibited severe symptoms since three months of age; that of Charles M., forty-six years old (Case VII.), had severe hereditary stigmata on both paternal and maternal side, and was an epileptic from early childhood.

In the eight others whose epileptic manifestations ceased for awhile or permanently, or who grew only better, hereditary stigmata were either absent, or, if present, the epilepsy had manifested itself late in life and commonly from an accidental cause.

The benefits these patients received from the treatment were generally more evident in those cases in whom the epilepsy was recent than in those in whom it had existed for a long time.

The two cases considered cured had no hereditary precedents. In them the first epileptic symptoms appeared about three years before treatment. In the other six cases that only grew better, the disease had existed for ten or twenty years and even longer. One of these patients (Case II.) was epileptic for five years only, but he was also the only one with severe hereditary predisposition.

Thus, from our cases it is evident that the hereditary forms that manifest themselves from childhood are the least suitable for the serum treatment, while the acquired forms of recent date give the most satisfactory results.

Further observation must decide whether the conditions above mentioned are the only ones that have to do with the very different ways in which epileptics react to the treatment. I think, however, that both the positive and negative results obtained by my experiments have great importance from any point of view.

The next question is, Is the effect obtained in epileptics due to a property peculiar to the serum of epileptics or to a property of human serum in general? To answer it control experiments are necessary. Accordingly, I subjected other epileptics to a treatment of continued injections, using the same method as before, but getting the serum from normal persons. In all six patients, chosen from the severest forms of epilepsy, were injected. I will limit myself to a short résumé of their histories and the results.

These subjects of control were as follows: A very severe case of a patient, thirty-seven years old, with hereditary epilepsy; four cases of patients from twenty to forty years of age, with acquired epilepsy that had existed for from ten to twenty years; and the case of a patient, fourteen years old, with acquired epilepsy of five years' duration. All received for three months injections with blood-serum drawn from healthy persons. None of them ever exhibited a diminution in the number of the attacks, or any improvement in health whatever.

In one case of acquired and inveterate epilepsy, there was a slight increase in the morbid phenomena. In all others the number and intensity of the crises did not change during or after this period of experiment. Countenance, character and mental state remained unchanged.

As to general nutrition, in one case, that is, in the youngest patient, who had been epileptic only five years, there was an increase of about 4 kilograms in weight. In the case of hereditary epilepsy and in two cases of acquired epilepsy, the state of general nutrition and the weight remained practically the same as before the injections.

The two cases of acquired and inveterate epilepsy grew worse generally, and in a period of three months diminished from 3 to 6 kilograms in weight. One of them, as already stated, exhibited also a slight increase of the epileptic crises. In about one month after the suspension of the injections, however, these two returned to their normal condition.

The contrast between the results with injections of the blood-serum of epileptics and those obtained by injections with serum of healthy persons, makes it evident that the power of determining the deep modifications in the condition of epileptics resides in the serum of the epileptics themselves and not in human serum in general.

However, although injections with normal serum have never exhibited and effectual anti-epileptic power, they have a certain analogy with injections of epileptic serum. The analogy is that some cases grew worse in consequence of injections with epileptic serum as did two from injections with the serum of normal individuals. Such an analogy, however, does not weaken the conclusion already drawn, namely, that the property of determining deep modifications in the symptoms of epilepsy belongs to the serum of the epileptics themselves.

Through injections with the serum of healthy persons we never obtained the clinical picture of acute or chronic intoxication such as we obtained with epileptic serum. It is to be noticed that while both acute

and chronic symptoms of intoxication by epileptic serum were characterized by an increase in number and intensity of the epileptic crises, the injections with normal serum caused a progressive deterioration in the general nutrition of the patient but without much increase in the epileptic crises. Also the two patients that grew worse in consequence of the injections with normal serum were restored to their habitual condition in about a month after the suspension of the injections; but the two patients that got worse after the injections with epileptic serum went several months before they returned to their normal state.

Although the number of negative results are small, the conclusion to which they would seem to point agrees with the modern autotoxic theory of epilepsy. Otherwise, we would have to believe that the same soluble toxic principles, now considered as the proximate cause of epilepsy, circulate in healthy persons and in epileptics. It may be that the epileptogenous principles are but exaggerations of physiological principles circulating in healthy individuals, for certain phenomena occurred in epileptics from the injection of normal serum. But if these are the same in kind, they certainly differ widely in degree. That is, however, largely hypothetical.

It seems in every way probable that the cause of the different and opposite effects obtained by injecting epileptic serum exists, for a great part, at least, in some organic condition of the patient into whom injections are made, and not in the person furnishing the serum. The same may be said of the injections into epileptics of serum of healthy people. This past month I have employed in my control experiments, both in the cases that remained indifferent to the injections and in cases in which a bad reaction occurred, the serum drawn from different persons than those who had furnished the serum in the preceding months. In both the results were the same.

This simple observation indicates that even the blood-serum of healthy individuals, as well as that of epileptics, contains some soluble principles that generally do not act like toxins when injected into the organism of epileptics, but that they may so act when the injected epileptic exhibits peculiar organic conditions which are altogether unknown to us.

Though the toxic effects determined by epileptic serum may be more severe and of a more specific character than in those determined by the serum of healthy persons, they nevertheless furnish a point of intimate analogy between the soluble active principles circulating in human blood in general and those circulating in epileptics. Such an analogy supports the opinion that the epileptogenous agents are but exaggerations of the physiological products that circulate usually in human blood.

It is only an hypothesis, and I advance it cautiously. But I wish to emphasize what may be of importance in the etiology of epilepsy, that in some cases injections with epileptic serum are contra-indicated.

Of course, the greatest interest of my experiments centers about the cases that have undergone a diminution or a complete disappearance of all epileptic phenomena. What meaning and value can we give to these results?

I think, above all, that the facts we have now before us cannot be interpreted by assuming an occasional immunity to epileptogenous toxins. According to the opinion we have of immunity, that it is conferred by habit and that it is generally obtained by progressive doses of mineral or vegetable poisons, we may suppose from our experiments that repeated injections with epileptic blood-serum may determine in other epileptics an increase of resistance to the fits. But we cannot go so far as to admit that such immunity would result in a complete and lasting suspension of all epileptic manifestations, as occurred in two of our cases.

Absolute immunity to a toxic agent conferred by habit would be strange and inconceivable, especially in such cases as ours in which it would have had to be produced by a small and artificial increase of a toxin that had long circulated in the organism.

Immunity by habit could, moreover, explain neither the deep modifications in nutrition nor the quickness of the therapeutic effects.

The question of a probable process of vaccination also presents itself. The modification in nutrition, one of the most important effects of our serum-injections, seem to correspond to the process of immunization itself; for we know from pathology that, for the greater part, resistance due to any form of vaccination whatever, is but the expression of nutritional changes. But the nutritional modifications in our patients appeared so quickly and to such a marked degree that I think even this last hypothesis does not suffice to explain the final results. For immunity, caused by vaccinating principles, usually proceeds very slowly and takes many days to establish itself.

The relation between the nutritive modifications and the immunity conferred by serum-injections has, in our cases, been more intimate and direct than we can imagine in any process of vaccination. The improvement in nutritional conditions, inferred from the considerable increase in weight of the patients, most frequently preceded the diminution in epileptic crises. In every process of immunizaton, however, resistance conferred upon an animal keeps pace with the nutritive modifications. These latter, moreover, are never so pronounced as in our epileptics. Further, if the epileptogenous toxic principles possessed vaccinating properties, an epileptic bearing these principles in himself would at length undergo a natural auto-immunization, and such immunization could not be obtained artificially by injecting into another epileptic some cubic centimeters of blood-serum that contains the same inoculating substances as his own blood contained. Finally, if epileptogenous principles have vaccinating properties it is impossible to understand how these properties may, in some cases, cause the symptoms of epilepsy to become progressively worse.

Therefore, the data we possess upon the mechanism of action of the active principles contained in the blood-serum of epileptics speaks against their having a vaccinating power; on the contrary, I think the same data demonstrate that it is probably a question of principles that are restoring and therapeutic at the same time. This opinion is sustained, as I have remarked, by the quick appearance of the beneficial results and still more by the intimate relations of time and degree between individual results.

I have become fully convinced that the improvements in general nutrition represent the return to normal of the organic elements. In all probability these elements constitute the seat of elaboration of the epileptogenous toxic principles and thus represent the anatomic basis of epilepsy itself.

The mediate influence of the organic modifications upon the final therapeutic result of injections has been too evident and constant in our epileptics to draw a different inference.

Therefore, the nutritive modifications in the present experiments are not due (as is now generally admitted for the different processes of vaccination) to the properties that the active principles have of modifying the nutrition and of allowing the cells to make elements

pernicious to bacteria or their products; but they are due to a direct action exerted by an active principle on the cells concerned in metabolism which are already in physiopathological conditions. The morbid condition of an epileptic would thus be subordinated to the said organic modifications, and the active agent contained in the serum would act in an indirect manner only.

This active principle of the blood-serum of epileptics, which is capable of determining in epileptics themselves a restoring and therapeutic action, may then be considered only as a principle which stimulates metabolism. So that henceforward it cannot be confounded with the anti-toxic principles of immunizing serum of microbic nature, which are the chief basis of modern serotherapy.

The mechanism of action of epileptic serum and those of microbic serum and of antitoxic serum are too different to permit their active principles being regarded as of the same nature, though they may seem to be so at first sight.

The antitoxic theory in the chemical and neutralizing sense, as maintained by Ehrlich and his disciples, as well as in the biological immunizing sense as maintained by Bouchard, Metchnikoff, Charrin, Roger, Vaillard, Roux and many others, could not at all explain the negative results obtained by the injections of epileptic serum, and to which we attach great importance for the pathogeny of epilepsy. The opinion that a stimulating principle is contained in the serum of epileptics, on the other hand, helps to explain the positive results and the negative ones also.

We have already proved that the chief cause of the different and opposite results secured by this new serotherapeutic treatment is dependent upon some peculiar and individual organic conditions in the epileptics who undergo it. We have already remarked, also, that some intimate relations of cause and effect must exist between the epileptogenous agent and clinical results. Therefore, I think it will now suffice to subordinate the action of this active stimulating principle to the peculiar pathological conditons of the elements of the changes in the various epileptics, in order to find the reason, for which the said continued injections may produce effects of such a different and opposite nature.

The influence of the individual pathological conditions on the final results may be due to the former being in some cases of a character to allow to the cellular elements (representing the probable anatomical substratum of the changes and of the epileptic manifestations) a physiological reaction to the mentioned stimulus: while in other cases the cellular elements are in a condition to deprive them of all power of a physiological reaction. In the first case we would have a positive reaction with the anatomical elements returning partially or wholly to their physiological state, *i.e.*, a diminution or disappearance of the circulatory epileptogenous toxic principles. In the second case, on the contrary, the reaction would be negative. The anatomical elements, under the influence of the stimulating principle, would get a pathological hyperactivity with a consecutive hyperproduction of the epileptogenous principles. These two cases would show clinically a diminution or total disappearance of all epileptic manifestations or an increase of them. Illustrations of both of these cases are furnished by our experiments.

Even the benefits of auto-serotherapy in epilepsy would find a plausible explanation by assuming a stimulating principle. In auto-serotherapy it seems to me that both the state of acquired immunity for accommodation or for inoculation, and the action of an antitoxin are to be *a priori* excluded. For the immunizing principles as well as the antitoxic ones, if they circulated in the organism of an epileptic, should exercise their beneficent action when circulating in the organism of the individual in whom they were formed. Also, were they really immunizing or antitoxic principles, they would never cause the general condition of the individual in whose organism they were elaborated to get worse, as we have seen in one case.

We must then admit even here a stimulating principle to metabolism, as we have done for the other cases. For it is no longer the serum of one epileptic which exerts a stimulating power to the metabolism of another epileptic, but the same blood-serum, inert in its physiological state, which now possesses that property. So we must believe, in general, that the serum of epileptics receives its stimulating property from the organisms of epileptics only at the moment it ceases being a physiological vital humor; that is, when it ceases circulating in the body and comes in contact with the external air.

We are then obliged to admit an active principle, that, in the physiopathological condition of an epileptic, exists in the blood in a latent state only. It is soluble, is perhaps bound to the anatomical elements of the blood, and in its free state grows active when these elements cease living.

Therefore, I think the theory of a stimulating principle, which, depending perhaps on a nervous influence, causes the manifestations of epilepsy to get better or worse, is the most reasonable to explain the different results I have obtained by continued injections with serum.

There remain a few words to be said concerning the meaning of the symptoms of the acute transitory intoxication observed in some epileptics. They appeared in direct consequence of the first injections with serum drawn from other epileptics. The nature of these symptoms, their sudden appearance and disappearance, and their transitory character are, I think, sufficient to indicate a crisis of accommodation to a new poison introduced into the organism. Therefore, it seems impossible to confound the cause of these acute direct phenomena with the causes of the chronic slow and progressive deterioration observed in other cases as the final results of continued injections.

That these crises of accommodation were never remarked after injections with blood-serum of healthy individuals (which might have been supposed after Bouchard had demonstrated that injections with blood or with blood-serum could not produce any toxic manifestations when they are made into animals of the same kind) is a direct demonstration of the presence of a poison which is soluble in the blood-serum of epileptics, but which does not exist in the blood-serum of normal individuals. These crises of accommodation characterized by motor and psychical epileptic manifestations, are not to be confounded with such accidents of modern serotherapy as polymorphic eruptions, exanthems and arthralgias. In the two cases the phenomena are different in nature and pathogeny. The accidents caused by immunizing serum are to be ascribed, at least according to some authors (Landouzy, "Serothérapie," Paris, 1901), only to the coefficient of the toxic power peculiar to the serum of the animal that has supplied it. These accidents are explained by the introduction into the human body of a serum obtained from an animal of a different kind. In epileptics the crises of accommodation are caused by serum of the same kind, but which has been drawn from an individual in a pathological state.

Only one objection can be made to this interpretation of the crises of accommodation. It is this: If it is really a peculiar toxin of the blood of epileptics that

determines the severe symptoms of an acute intoxication, why does it not do so in all epileptics undergoing these injections? It was noticed only in a few.

We answer this by saying that the individual organic conditions of the patient into whom the serum was injected may entirely modify the characters and intensity of the phenomena of reaction to the toxin of which we are speaking.

We have already seen that the positive or negative final result depends almost exclusively on the individual organic conditions of the epileptic treated. Now I think it even more justifiable to maintain that the different modes of reaction and accommodation to a toxin that is introduced into the organism are dependent upon individual conditions. For we know the extraordinary importance that the individual state and natural immunity may have, not only for the different and opposite resistance to the actions of poisons in different animals, but even in the same animal, as we see also in human pathology.

The resistance to the toxic power of blood in general varies in animals of the same kind, as is proven by a series of experiments I have made and which will be published in a short time. It is sufficient for me now to state that more than once I have seen a cavy die from an intraperitoneal injection of 5 cubic centimeters of a determined serum, while another cavy, as heavy as the former, resisted 10 cubic centimeters of the same serum.

That the poison circulating in the blood of epileptics is the epileptogenous agent that all authors admit as the proximate cause of the disease, is, I think, probable, and it is doubtless always present in the blood of an epileptic.

Another objection to our explanation of the crises of accommodation is this: If the said toxic principle does represent the epileptogenous agent commonly circulating in the organism of epileptics, how can we explain the fact that, by increasing it artificially through injections with very small doses of serum, severe perturbations arise in the stable equilibrium of the epileptic organism with phenomena of acute intoxication?

I cannot answer so complicated a question, but I think these acute phenomena are to be ascribed to the quantity of the toxic principles rather than to their quality.

The individual state of a normal person must correspond to some peculiar bio-chemical condition of the tissues and humors of the economy. Individual variations must also exist in the bio-chemical constitution of the tissues and the humors of individuals in a pathological state. I will incidentally recall that the phenomena of an acute intoxication were induced directly only by injecting into one epileptic the serum of another epileptic. We never observed symptoms of acute and direct intoxication from injecting into an epileptic the same blood-serum he had supplied a few days before.

This fact shows that the toxic principles circulating in a free state in the different epileptics and having a common property (the power of stimulating the epileptogenous nervous centers) may have remarkable variations in their constitution. It is evident that it is easier for the organism of an epileptic to accommodate itself to its own toxin, than to a toxin fabricated in the organism of another epileptic. Therefore, it is not surprising that the injections with serum made into the individual from whom it was obtained provoke no inconveniences.

The second co-efficient, that is, the bio-chemical variations in the constitution of the toxin circulating in the different epileptics, must be taken into account to explain the diversity in the crises of accommodation caused by the injections with the serum of one epileptic into another epileptic.

Even if we have now demonstrated that in the blood of epileptics there is a toxin having direct importance to the etiology of epilepsy, we have not yet explained the genesis and nature of the active principles of epileptic serum itself, in spite of the analogy existing between these active principles and the antitoxic substances of modern serotherapy.

We have already seen that the restoring therapeutic properties of epileptic serum are to be ascribed neither to immunizing toxic substances nor to antitoxic ones. The analogy between the antitoxins of microbic serum and the active principles of epileptic serum are really only apparent. The existence of a toxin in the blood of epileptics might lead one to think of a relation of cause and effect between such a toxin and the active therapeutic principles. We know, of course, that such antitoxic principles of a biologic nature exist in the organism of animals to which the action of a vaccinating microbic substance has given immunity.

But in order that I may better demonstrate that a substantial difference exists in the genesis and nature of the antitoxins of microbic serum and those of the therapeutic principles contained in epileptic serum, I will call attention to the different mechanism in the elaboration of these two active principles.

First, the active substances of the serum of epileptics are formed in an organism, which, in opposition to that in which the antitoxic substances of microbic serum are fabricated, has no immunity. In the second place a toxin of endogenous origin, such as circulates in the blood of an epileptic, does not possess the inoculating properties of bacterial toxin.

The first proposition is demonstrated by the clinical course of epilepsy. The second, which can hardly be separated in the mind from the first, was demonstrated by our experiments.

If we wish to find an analogy between antitoxins in general and the therapeutic principles of epileptic serum, we must assume that the epileptogenous agent elaborates an antitoxin in a biological sense, which does not have any vaccinating properties. This will remain merely an hypothesis until demonstrated by experimental pathology.

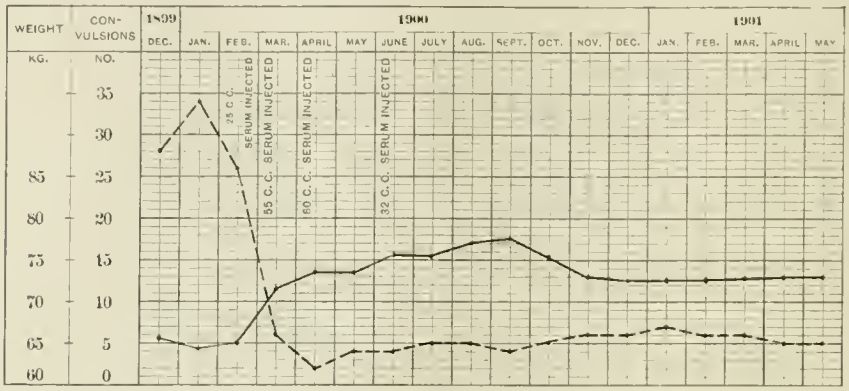
I will recall on this subject the discouraging results of the great researches by Bouchard. Bouchard, assuming that the peculiar secretions of a pathogenic microbe or organic cell are to be found in the urine and blood-serum of patients, tried to establish resistance through the one and the other to the bacterial (pneumonitis, erysipelas, etc.) and the non-bacterial (Addison's disease, etc.) diseases. It might be assumed that in epilepsy, also, it was a question of physiological principles existing in the tissues and humors of the economy, such as have, for the therapeutic action they exert, given rise to the transfusion of normal blood or serum, artificial serum, or the extracts of different organs (thymus, testicles, thyroid, etc.). But we have already seen that the blood-serum of normal individuals is almost always inactive in epileptics; therefore, we must exclude the idea of an active principle of mere physiologic origin. We have but to think of the transitory effect that may be determined by the physiological principles in general, as Gramatschikoff's studies have stated, to convince ourselves that the active principles existing in the blood-serum of epileptics must be of a different origin and nature. For the effects of the latter, especially the positive ones, exhibit a character of remarkable stability.

Any opinion as to the intimate nature of the active

principles existing in the blood-serum of epileptics would now be premature; therefore, I content myself with having stated certain facts and having tried to put them in evidence, with a detail that may serve to demonstrate their scientific and practical importance.

is different in different individuals. The phenomena it determines are transitory in character.

The other active principle circulates in the blood of epileptics, but only in a latent state. It is endowed with properties which have a stimulating power on the



Case V.

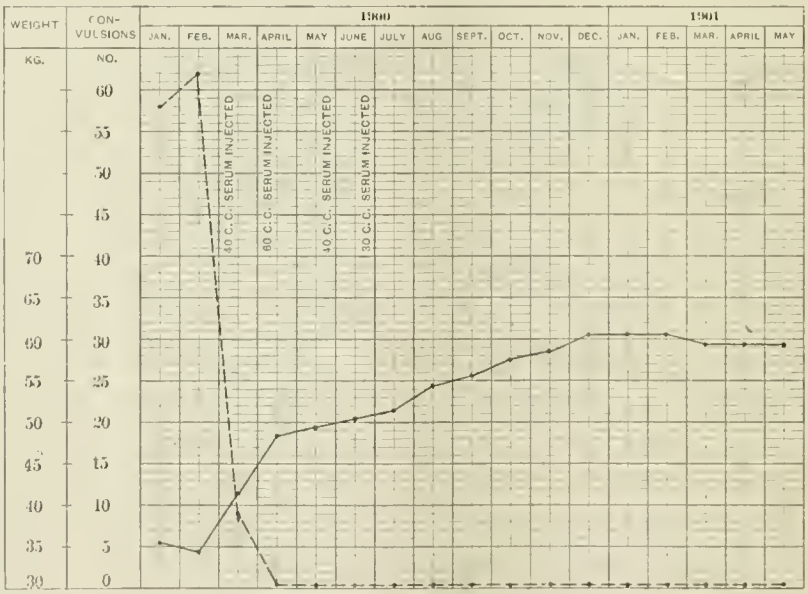
I hope that others may soon confirm my results and extend the experiments to less severely afflicted epileptics than these in the asylum to which I was obliged to limit my researches.

. . . . . .

We may then conclude by saying that the said researches demonstrate that in epileptic blood there are

metabolic cells which are concerned with the elaboration of the epileptogenous toxic agents.

These stimulating properties appear only as remote consequences that take place as a result of repeated injections over a considerable period of time with the blood-serum of an epileptic into himself or into another epileptic.



Case VI.

two active principles, which their different and opposite properties show to be of different nature and origin.

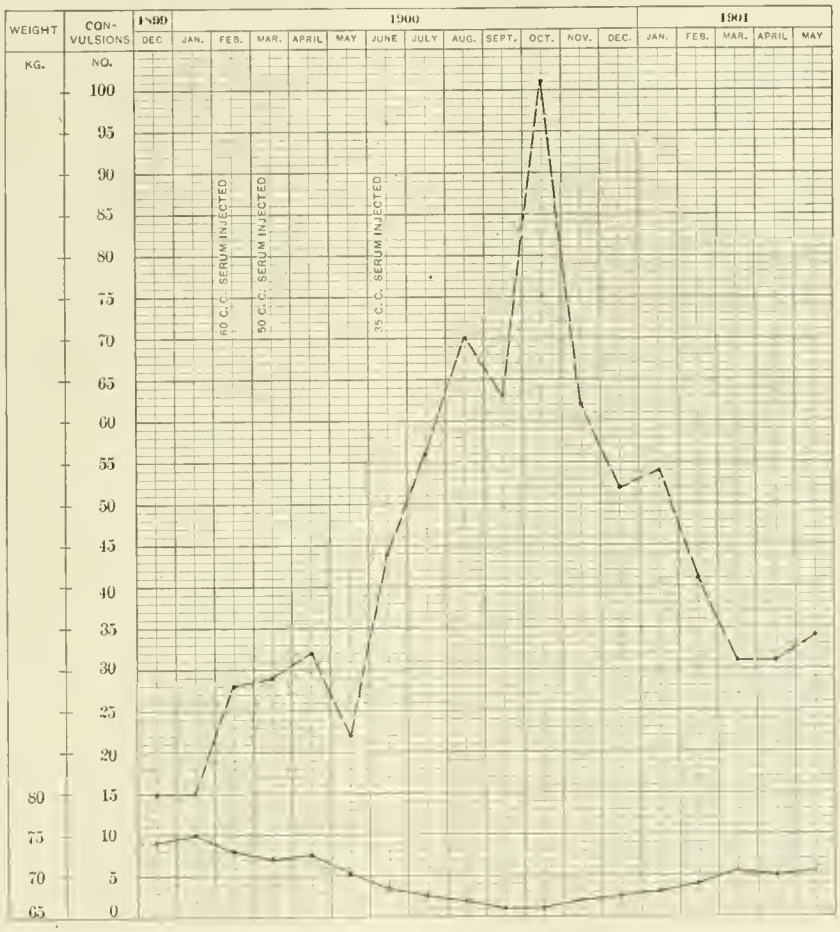
One of these principles circulates in a free state, and is only endowed with toxic properties when injected into the organism of another epileptic. The toxic effects may be immediate and direct and may follow even small doses. The activity of this toxic principle

These stimulating principles can deeply modify nutrition and epileptic manifestations. Upon both they exert a slow progressive action which may be restoring and therapeutic, or weakening and poisonous.

Their diverse and opposite modes of action depend upon some peculiar organic condition of the individual injected and are practically unexplained. The organic

condition of the patient in whom they are elaborated has no apparent influence on the different and opposite activities they may present.

In the cases in which stimulating principles have restoring therapeutic properties, there always result a remarkable increase in body-weight and an improvement or total disappearance of disturbances of organic functions or of social life. The disturbances of psychic functions and the epileptic manifestations of whatever nature get much better or disappear entirely. The stability of these positive results is in a direct relation with the degree of physiological reaction in the elements of nutrition.



Case VII.

In the cases in which the said principles do not act favorably on metabolism, the serum injections are useless. If continued in the same manner as in the preceding cases, there result a diminution in weight and a getting worse of every disturbance of the organic or social life. The psychic functions become more impaired and the epileptic manifestations increase in number and intensity, sometimes to a marked degree.

The accompanying tables are the graphic demonstrations of the changes in weight and in epileptic crises in Cases V., VI., and VII., as a result of the continued injections of serum.

In Case V. giddinesses and convulsions are considered together as epileptic accidents.

ORIGINAL ARTICLES.

ACUTE INFLUENZAL NEPHRITIS IN CHILDHOOD.

BY B. K. RACHFORD, M.D.,
OF CINCINNATI, O.;
PROFESSOR OF PEDIATRICS IN THE MEDICAL COLLEGE OF OHIO.

Experience leads me to believe that acute nephritis occurs not infrequently as a manifestation of influenza in children. Freeman[1] has reported a case of this kind and has collected and tabulated nine others.

In this paper I report four distinct cases of acute influenzal nephritis, which I have seen in the last few years. In addition to these cases I can distinctly recall two others not here reported, one of which was discovered on the fourth day of the influenza, and died of acute hemorrhagic nephritis two days later. The other was treated for a few weeks last winter, at the Good Samaritan Hospital, where I utilized the case in my clinical lectures. Under protest this patient was removed by his mother from the Hospital,

[1] Transactions of Amer. Ped. Soc., Vol. XII, 1900.

long before his convalescence was established. He was then treated for five or six weeks at my out-door clinic, under bad hygienic and dietary conditions, yet his recovery was complete.

Each of these cases occurred, not as a sequel but as a part of the influenza attack. The kidney symptoms in every instance occurred while other active influenza symptoms were still present.

The influenza poison attacked the kidneys and produced a most violent acute nephritis just as it, in other cases, attacks and produces inflammation of the lungs, the intestines, the meninges, and other parts of the body.

Acute influenzal nephritis as it occurred in these children comes on more quickly and violently than nephritis produced by scarlatina, diphtheria and the other acute infections. And my experience with these cases also teaches me that the worst symptoms occur as a rule within six or seven days after the kidney is attacked, and that, if complete suppression and profound uremia do not destroy the life of the child within the first week of the disease, a sure and steady improvement begins which leads to complete recovery. It is possible that in some of these cases, a chronic nephritis may be established, but I have never seen such a case. One of my cases previously referred to but not here reported, which, after the first severe symptoms had subsided, was treated in the out-patient department at my college clinic, certainly was given an opportunity to develop chronic nephritis by bad hygienic surroundings and improper food, and yet recovered. This case to my mind forcibly illustrates the strong tendency which there is to spontaneous recovery in these cases after the acute symptoms have been relieved.

These remarks apply only to influenzal nephritis as it occurs in infants and young children. In the adult the picture of this disease is a very different one, as is shown by Dr. G. Baumgarten in "Renal Affections Following Influenza."[1]

In the adult acute hemorrhagic nephritis, occurring during the influenza attack, is nothing like as common as it is in the child. Chronic nephritis, however, resulting from repeated attacks of influenza is much more common in the adult than in the child. Personally, I have never observed a case of this kind under twelve years of age.

From my own experience, in the following cases, I have been led to consider acute influenzal nephritis in childhood not as a sequel or a complication, but as a part of the influenza attack. The kidneys are among the organs of the body which are not exempt from primary attack by the influenza poison.

Case I.—Girl, seven years of age, has had in the last four years two or three attacks each of influenza and catarrhal croup and follicular tonsillitis. In March, 1898, she had an attack of laryngeal diphtheria, during which she wore an intubation tube for one week, and received 6,000 units of antitoxin. Her recovery was satisfactory and there was no evidence of nephritis at this time.

March 22, 1900, I was called to see this patient and learned that she had been ill with influenza for ten days. In the beginning of "the cold," the mother had kept her in bed for two days, but for the last week she had been going about the house and out of doors as she pleased. During this time she had had a bad cough and a "head cold," but not enough to alarm the mother, who had treated the case with home remedies. It was after dark when I reached the house. My patient was sleeping very soundly, but was awakened without much difficulty. She had a slight bronchitis, a catarrhal sore throat, and a temperature of 102° F. A puffiness about the eyelids led me to suspect nephritis and I accordingly prescribed calomel, a milk diet, and confinement to bed. I asked that a specimen of urine be sent to me next morning, as soon as it could be collected.

Two ounces of bloody urine were sent to my office about ten o'clock the next morning. This I learned later was all she had passed since the evening before. It contained blood and epithelial casts and was very heavy with albumin.

A trained nurse went on duty at five p.m., and I saw the patient a little later. Twenty-four hours had produced a marked change in my patient. The stupor was now marked, the face was swollen, and the stomach was so irritable that nothing had been retained during the day. Temperature 100° F. Calomel was continued and nourishment was discontinued.

March 23d, 8 a.m.: Symptoms unchanged; nothing has been retained on the stomach. No urine has been passed. The calomel was continued, a high rectal injection of a quart of sulphate of magnesia solution was given, and hot baths were ordered every four hours.

I saw the patient frequently during the day, and her condition remained unchanged. She slept constantly, except when vomiting, or when she was disturbed by a bath, or otherwise. No urine had been saved, and the nurse reported at 10 p.m. that none had been passed in the last twenty-four hours. It may be, however, that some urine escaped with the high enema of sulphate of magnesia solution which was repeated at 6 p.m. without effect. Magnesia sulphate was ordered by the mouth.

March 24th: Nurse has saved four ounces of bloody urine; the condition remains much the same, except that there was little less irritability of the stomach and the bowels had moved slightly. Sulphate of magnesia was continued, a teaspoonful every four hours, hot baths were continued, and high enemata of normal salt solution were ordered every four hours. No nourishment was attempted. At 8 p.m. the stomach was less irritable, quite a good deal of the magnesia had been retained, bowels had moved slightly, and about 3 ounces of urine had been collected by the

[1]Transactions Assn. Amer. Phys., Vol. X.

nurse. Treatment was continued. Dr. F. Forchheimer saw the case with me during the afternoon.

March 25th, 8 a.m.: Patient's bowels moved slightly during the night, stupor not so marked, stomach less irritable; 6 ounces of urine saved: 8 p.m., patient very weak, but otherwise improved, bowels have moved freely, and there has been no vomiting during the day; 4 ounces of urine saved. Treatment continued, except that the magnesia was given every twelve hours, and a little buttermilk was allowed during the night.

March 26th: Patient more comfortable this morning, but very weak, pulse rapid, and temperature one degree below normal. From this time on the patient slowly convalesced, but required careful attention throughout the whole month of April. During all of this time she was kept in bed and upon an exclusive diet of milk. The urine gradually cleared, but still contained albumin and casts until the middle of May. A trace of albumin was found in the urine on the 18th of May. This was the last. Her recovery, although slow, was complete and by the middle of June she had recovered her health and strength and has remained well up to the present time.

Case II.—Albert A., twelve years of age; all the members of his family including himself had influenza. I stopped at the house on March 1, 1897, to see his brother and sister. He, while he had "a cold in his head," was not considered ill enough to require the services of a doctor. I did not visit the family for a week after this date and during this time my patient had fever, cough and other influenza symptoms. About the 6th of March, however, he was thought well enough to visit a friend in another part of the city. He remained there during the day; his father came for him in the afternoon, and found him very nervous and suffering from a frightful headache. He ordered a carriage to take the boy home and drove past my office in doing so. The boy walked into the office with his father, and as I was not there they decided to wait for my return. One-half hour later, about 5 p.m., he had a very severe general convulsion, and a number of physicians in the neighborhood were called to see him. On my return at 6 p.m. I found him lying on a lounge in a heavy stupor, from which he could be aroused with difficulty. I assisted the father in carrying the boy into the carriage and he was taken home. On our arrival there I obtained some urine by catheterization and found it heavy with albumin, and containing many granular and epithelial casts. This made the diagnosis of influenzal nephritis plain. He was ordered sulphate of magnesia, a teaspoonful every two hours, and a hot bath every three hours. During the night he had another violent convulsion. The next morning the stupor was a little less marked and the swelling of the face which had existed the night before was also very pronounced. The magnesium had been retained and his bowels had moved freely. During the next few days, the hot baths and magnesium sulphate were continued and a small amount of milk was given. From this time his convalescence was rapid; at the end of three weeks the albuminuria had entirely disappeared, and the patient was convalescent.

Case III.—Girl, seven years of age, was admitted to the Children's Ward of the Cincinnati Hospital December 2, 1900, with influenza, which she had had for one week. At the time of her admission the tonsils were swollen and red and the cervical lympathatics were enlarged and tender. Temperature 102° F. There was no history of any other acute infectious disease. Physical examination showed slight bronchitis with some swelling about both ankles. A specimen of urine obtained by catheterization contained about 4 per cent. by volume of albumin; epithelial casts were present; specific gravity, 1024.

Treatment consisted in rest in bed, milk diet, calomel, and hot baths every six hours.

December 3d: Patient retained very little milk, vomiting occurred a number of times. No urine was passed voluntarily after the catheterization twenty hours ago. Eight and a half ounces of urine were obtained by catheterization. Sulphate of magnesium, a teaspoonful every four hours, was added to the treatment.

December 4th: Stomach less irritable, bowels moved freely, some urine has been passed voluntarily. Sulphate of magnesium given once a day; baths every eight hours.

December 5th: Patient improved, milk is retained, edema less, bowels moved freely, urine passed voluntarily, albumin less.

December 15th: Patient has improved steadily, there is no albumin in the urine to-day.

January 3d: Patient discharged well.

Case IV.—Boy, four years of age. He and three other brothers and sisters had had influenza for a week, and during this time he had a mild bronchitis, a catarrhal sore throat, and a nasal catarrh, with a temperature ranging between 101° and 104° F. After one week's illness, on February 1st, he was seized with a convulsion and brought to the Cincinnati Hospital, where I saw him for the first time. The convulsions continued for more than two hours, and during this time the convulsive movements were partially controlled by inhalations of chloroform; hot baths and chloral by the rectum were also given. The convulsions, however, continued, and after a few hours it was decided to dispense with the chloroform and give a twelfth of a grain of morphine hypodermatically. The morphine controlled the convulsion, but the child remained profoundly unconscious. On his admission to the hospital a small quantity of urine was drawn from the bladder, this urine was tinged with blood, and the filtered urine contained a very large percentage of albumin. Epithelial and blood casts were abundant. The examination of the urine led to the diagnosis of acute nephritis, and the treatment above detailed was accordingly pursued.

Following the hypodermic injection of morphine, salt solution was given by the rectum and

also subcutaneously, and the hot baths were continued at frequent intervals. But these means failed to establish the kidney secretion; the patient remained profoundly unconscious and died the next day. In this case the hypodermic injection of morphine should have been followed by bleeding and the intravenous injection of salt solution.

A NEW METHOD OF LOCATING FOREIGN BODIES BY MEANS OF THE X-RAY.

BY LEWIS GREGORY COLE, M.D.,
OF NEW YORK.

Various methods of locating foreign bodies have been described; some simple ones without the use of expensive apparatus; others more complicated and requiring such apparatus. Of the simpler methods the one most in vogue is that of taking two skiagraphs at right angles to each other. This is applicable only when the foreign body is in an extremity and even then, unless the technic be perfect, there is a chance for error. (1) The skiagraphs should be taken at right angles to each other. (2) The tube should be at the same distance from the plate during each exposure. (3) The rays which cause the shadow of the foreign body should strike the plate at right angles. (4) The anode should be directly over the approximate location of the foreign body as ascertained by a fluoroscopic examination.

After having taken two skiagraphs, one to locate the foreign body anteroposteriorly, the other to locate it laterally, estimate the third dimension by its relation to some bony prominence. Measure the distance on the skiagraph from the foreign body to some bony prominence and then measure the same distance on the extremity from that bony prominence in the direction of the foreign body and mark the point with silver nitrate.

This seems accurate, but how often the needle, bullet or whatever it may be, appears to have moved since the skiagraph was taken! I think the following diagram will explain the error in this method.

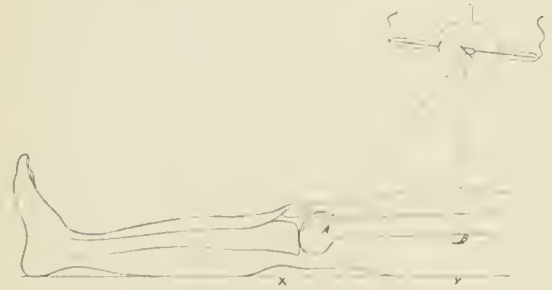


Fig. 1. X, shadow cast by adductor tubercle; Y, shadow cast by foreign body; A, adductor tubercle; B, foreign body.

If the tube be over the foreign body, located about the middle third of the thigh, a ray of light falling perpendicularly casts a shadow of that foreign body under it. Selecting the adductor tubercle on the inner tuberosity as the nearest bony prominence, a ray of light passed through it does not fall perpendicularly on the plate, but at an angle corresponding with the distance of the tube from the plate, and the distance of the foreign body from the adductor tubercle and the distance of that bony prominence from the plate, which in an adult is about three inches. Therefore the shadow cast by it on the plate is further from the shadow cast by the foreign body than the latter is from the bony prominence.

Now if we measure the distance in the skiagraph between the foreign body and the adductor tubercle, and then measure the same distance up the thigh from that bony prominence and mark it with silver nitrate, we shall find that that mark is as much above the foreign body as the shadow cast by the adductor tubercle on the plate was below that bony prominence.

Another simple method consists in taking two skiagraphs on separate plates at different angles; then measuring the distance from the edge of each plate to the shadow cast on it by the foreign body and subtracting the one from the other.

There is much difficulty in substituting the second plate for the first one. The movement of the patient and the movement of the plate in the envelope lead to an error that is hard to overcome. Even if the technic were perfect, there would be nothing to guide the operator as to where to make an incision, as the shadows cast by the bones are so distorted in each of the skiagraphs, owing to the angle at which the rays of light fall on the plate, that it would be very misleading, as shown by the diagram of a foreign body in the thigh.

Another method, that of taking two skiagraphs on one plate by interposing a metal plate so as to cover one-half of the plate while exposing the other half, has been described. The interposing of metal so as to protect one-half of the plate without interfering with the shadow cast by the foreign body on the other half is extremely difficult, especially when the foreign body is near the posterior surface of the body, and its shadows are cast near together; it is absolutely unnecessary, though if one does succeed in getting both shadows on one plate in this method, one has the foundation for locating the exact distance of the foreign body from the surface; but no way of locating it as regards its relation with any bony prominences because of the error described in locating the foreign body in the thigh or with any known point on the surface of the body.

I would like to present the following method, which does not require expensive apparatus, which is applicable to any part of the body—especially the thorax and abdomen, and which is, I think, absolutely accurate both as regards the location of the foreign body and its distance from the surface, and which gives the operator a definite problem, viz., The foreign body is between two known points on the surface of the body; how far is it from either of these two points?

To ascertain the first, remove the patient's clothing and place him horizontally on a table through which a fluoroscopic examination may be made.

Place the tube over the region of the foreign body and make fluoroscopic examination. This may or may not result in its approximate location. If it does, leave the tube placed directly over it. If not, a skiagraph may be taken to ascertain this, and then place the tube over the approximate location as ascertained by skiagraph.

If the fluoroscopic examination reveal the foreign body, place two coins (dimes), one on the anterior, the other on the posterior aspect of the body, so that a ray of light passing vertically from the anode would pass through both coins and the foreign body—thereby all casting one shadow on the fluoroscope or plate. Remove the coins and mark their position with silver nitrate.

If the foreign body cannot be detected by a fluoroscopic examination and the coins are so arranged as to cast one shadow, the method is a little more difficult, but none the less accurate. Instead of arranging the coins during a fluoroscopic examination, we must do so by taking a skiagraph. Arrange the coins as before, so that they both cast the same shadow as near as possible to the approximate location of the foreign body as ascertained by the first skiagraph; then take a second skiagraph and learn the relation of the foreign body to the coins.

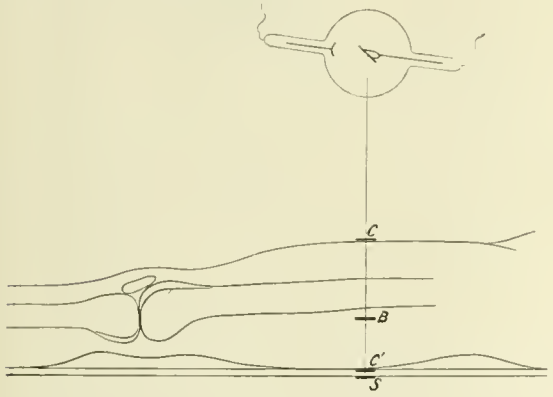


Fig. 2. C and C', coins; S, shadow cast by coins and foreign body; B, foreign body.

If the foreign body be between the coins, it will cast its shadow with theirs; if it be *near* an imaginary line passing between the coins, it will cast its shadow *near* theirs. Measure the distance between the shadows cast by the coins and that cast by the foreign body, move the coins this distance in the direction of the foreign body. If it be less than an inch, remove the coins and mark their position with silver nitrate; if more than an inch, it is safer to take another skiagraph and ascertain whether the foreign body is between the coins. We now know, either from the fluoroscopic examination or the skiagraph, that the foreign body is between two known points marked with silver nitrate.

To ascertain how far the foreign body is from the surface, place the plate in apposition to the body at the posterior mark, then place the anode directly above the anterior mark. If one has been able to detect the foreign body and arrange the coins during a fluoroscopic examination, the tube will already be there; if not, drop a plumb line from the anode to the anterior silver nitrate mark. Note the distance of the anode from the plate.

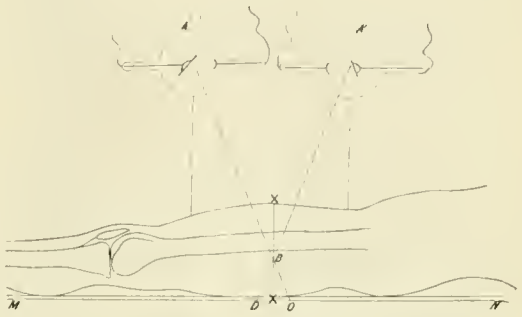


Fig. 3. A, tube in first exposure; A', tube in second exposure; O, shadow cast by bullet during first exposure; D, shadow cast by bullet during second exposure; B, foreign body; M, N, plate.

On this plate make two exposures, moving the tube for the first exposure a short distance from its present position. For the second exposure move it exactly the same distance from its original position but in the opposite direction. Note this distance. This may be done by marking on the surface of the body two points equally distant from the original silver nitrate mark and in directly opposite directions, using a plumb line to place the anode over these marks, as per diagram.

Now one has two shadows of the foreign body on one plate; develop the plate regardless of everything except these two shadows. Using the distance between them, one can ascertain by the following diagram and formula the distance of the foreign body from the surface:

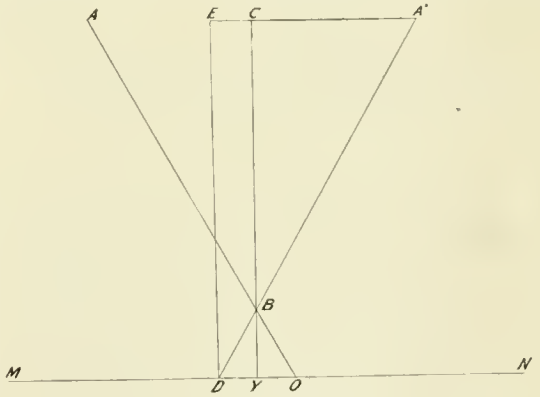


Fig. 4. Diagram.

Let MN be the plate; B. the bullet; A, the position of tube during first exposure; A', position of tube during second exposure; O, shadow of bullet first exposure; D, shadow of bullet second exposure; CY, a fine passing perpendicularly through bullet.

If the distance CY is 14 inches, if the distance AA' is 6 inches, if the distance DO is 1 inch, in order to find the distance BY, draw line ED parallel to CY; then in the similar triangles, A'ED

and A'CB, A'E : A'C :: ED : CB; or, substituting measurements, 3½ : 3 :: 14 : X, X=12. If CB=12, then BY=2 inches. Therefore the foreign body is two inches from the surface of the body.

A simpler method of calculating is as follows: AA' + DO : AA' :: CY : CB; 7 : 6 :: 14 : X.

CY=14 inches.
CB=12 "

BY= 2 " from surface of the body.

The skiagraph of an adult who was shot in the shoulder, the bullet entering just at the greater tuberosity of the humerus, was taken. There were a hematoma, pain and tenderness of the subcoracoid space.

I took a skiagraph from behind forward which showed the bullet about 1¼" from the head of the humerus toward the median line.

A resection of the shoulder was decided on and it showed that the bullet had passed obliquely backward and inward; an incision into the subcoracoid space showed the hematoma to be from injury to the head of the humerus, and that the bullet was posterior to the chest.

I then took another skiagraph making two exposures on the same plate, with the tube in the second exposure six inches from its position during the first, and placing the angle of the safety pin at the position of the posterior silver nitrate mark. The tube being 13 inches from the plate, working it out from the above formula, I found the bullet to be 3.1 inches from the posterior silver nitrate mark. As the man was very thick through the shoulders and chest, that would bring it between the scapula and chest-wall instead of in the subcoracoid space, as the first skiagraph would lead one to think.

THE RATE OF GROWTH OF EPITHELIUM OF ULCERS; OBSERVATION OF 100 CASES AT THE VANDERBILT CLINIC, N. Y.

BY SIGMUND DEUTSCH, M.D.,
OF NEW YORK.

The following experiments were made in order to ascertain with some accuracy the rapidity with which new epithelium will grow over ulcers or raw wounds, and to deduce from the results obtained the best method or methods by which ulcers of various varieties can be healed in a relatively short time; in other words, the employment of such means as will produce a sufficient stimulation to the epithelium surrounding the ulcer and to the ulcer itself.

In order to obtain satisfactory results, it was necessary to watch the ulcers, each individually, measure their extent, record the treatment and the results thereof, and observe whether they yielded to treatment. To this end, the ulcers under observation were measured every week and by this means one could readily see if any progress was made.

There are also other factors which to a certain extent influence the results obtained and must necessarily be taken in consideration. The cause of an ulcer; its situation; the condition in which the ulcer is found, whether it presents a healthy, and clean or a sloughy or gangrenous surface or a foul discharge; whether superficial or deep; and, lastly, the age of the patient. The season of the year plays perhaps some rôle, since hot weather is detrimental to varicose and eczematous ulcers, but has little influence upon the other varieties.

With regard to the cause, I have found it very convenient to divide ulcers into three classes: (1) Those belonging to the varicose and eczematous variety; (2) those due to constitutional or local syphilis; and (3) ulcers due to trauma, including burns, infected wounds and ulcers due to vaccination.

The situation of an ulcer is very important, not as a matter of diagnosis, but as a matter of fact. Ulcers situated at the malleoli, heel or arch of the foot are the most sluggish and most difficult to treat; while an ulcer situated on the arm will heal more quickly than one on the leg.

The condition in which an ulcer is found will alter the treatment and consequently the results obtained, for it makes a great deal of difference whether an ulcer is clean to start with, or whether weeks have to be spent in cleaning a sloughy or gangrenous area of ulceration. A discharging ulcer presents the same difficulty, though it requires less time to check this secretion.

The depth of an ulcer presents perhaps the greatest obstacle to its healing. If an ulcer is superficial, the structures lying beneath the epithelium are intact and abundantly supplied with blood-vessels; hence it will take less time for the epithelium to grow over this ulcer. But the case is quite different when the deeper structures are destroyed, not only because the ulcer is deprived of its blood-supply, but also because a very large quantity of material is required to fill the cavity. Therefore, a superficial ulcer measuring 25 x 35 mm. is really smaller than an ulcer measuring 10 x 10 mm. and perhaps 2 or 3 mm. deep.

The age of the patient must also be taken into account. In the old the blood-supply is less and the resisting powers are weak; and if in addition the state of nutrition is bad, one can readily see that an important stimulus essential to the healing of any wound is wanting.

Hot weather is certainly an impediment to the growth of the epithelium of a varicose ulcer, since it increases itching and the patient will surely scratch the affected part, thereby producing a great deal of irritation. The secretion is also increased and being easily decomposed is another source of irritation. Be it as it may, this much is certain—during the hot spell in July of last year I observed that nearly all the ulcers of the varicose and eczematous variety either became larger in extent or remained stationary for two or three weeks.

The treatment was manifold. Each case was treated on its own merit. Some ulcers responded readily to one remedial agent, while in others of the same variety no results whatsoever were ob-

VARICOSE ULCERS.

Age.	Duration.	Condition at Beginning of Treatment.	Location.	Treatment.	No. of Weeks Until Healed.	Measurements in Millimeters. At Beginning	At End.	Average Growth Per Week.
61	8 years.	Deep, clean.	Leg.	Balsam.	10	115 x 94	24 x 7	9 mm.
61	8 "	" "	Int. malleol.	"	10	34 x 26	12 x 5	2.1 "
65	4 "	Superf., clean.	Leg.	" and Ag. NO_3.	5	60 x 45	0	10.5 "
37	1 month.	" "	"	" " red wash.	3	95 x 11	0	3.4 "
56	$2^1/_2$ years.	Deep, "	Int. malleol.	" " "	7	14 x 15	0	2. "
48	2 "	Superf , "	Leg.	Red wash.	4	25 x 15	0	5. "
65	1 "	Deep, "	"	Balsam.	4	13 x 11	0	3. "
43	8 months.	Superf., "	"	"	5	10 x 16	0	2.6 "
37	3 years.	Deep, "	Ext. malleol.	Red wash.	3	5 x 8	0	2.1 "
68	5 "	" "	Ankle.	Balsam, red wash.	12	34 x 25	13 x 10	1.5 "
60	7 "	" sloughy.	Ext. malleol.	Red wash, creolin.	8	34 x 19	0	3.3 "
52	18 months.	Superf., "	Leg.	Red wash.	5	15 x 13	0	2.8 "
66	4 years.	" "	"	Balsam, red wash.	10	31 x 14	0	2.25 "
46	$2^1/_2$ months.	" clean.	"	Red wash.	5	21 x 18	0	3.9 "
30	7 "	Deep, sloughy.	Sole.	Red wash, balsam.	2	8 x 6	0	3.5 "
32	2 years.	" "	Leg.	" creolin.	10	110 x 40	0	7. "
60	14 months.	" clean.	"	Red wash, Ag. NO_3.	11	18 x 11	3 x 4	1. "
40	4 "	" "	"	"	2	5 x 11	0	4. "
37	3 years.	" sloughy.	Int. malleol.	" "	9	9 x 10	0	1. "
37	2 weeks.	Superf., clean.	Leg.	Balsam, "	4	15 x 10	0	3. "
38	2 years.	Deep, sloughy.	"	Lycopod., creolin.	9	30 x 18	15 x 10	1.2 "

SYPHILITIC ULCERS.

32	2 months.	Superf., clean.	Leg.	Alum acetate.	4	15 x 15	0	3.75 mm.
22	1 "	Deep, sloughy.	Sole.	Red wash, creolin.	4	29 x 20	27 x 22	0
16	2 weeks.	Superf., clean.	Leg.	Alum acetate.	4	35 x 32	0	8.3 "
48	4 years.	Deep, sloughy.	Knee.	" "	10	60 x 45	0	5.25 "
42	?	" "	Leg.	" "	4	17 x 13	0	4. "
26	1 week.	" "	Chest.	" "	5	45 x 30	0	7.5 "
?	3 "	Superf., clean.	Leg.	" "	2	10 x 10	0	5. "
28	3 months.	Deep, sloughy.	Knee.	" "	8	78 x 52	0	8.1 "

TRAUMATIC ULCERS.

21	8 months.	Deep, sloughy.	Arm.	Balsam, creolin.	4	17 x 30	0	6. mm.
38	?	" clean.	Elbow.	"	3	30 x 14	0	7.3 "
30	4 weeks.	" sloughy.	Finger.	" red wash.	4	16 x 12	0	3.5 "
23	3 months.	Superf., clean.	Ant. surf. leg.	" "	6	17 x 11	0	2.33 "
41	1 week.	" "	Arm.	Boric acid ointment.	2	13 x 20	0	8. "
39	1 "	Deep, sloughy.	Leg.	Balsam, red wash.	5	29 x 14	0	4.3 "
38	18 months.	" clean.	"	Red wash, creolin.	8	65 x 25	0	5.5 "
18	2 weeks.	Superf., clean.	"	Alum acet., Ag. NO_3.	6	25 x 21	0	3.8 "
36	1 "	" "	"	" boric acid oint.	7	25 x 50	0	5.3 "

tained. The varicose and eczematous ulcers constituted the majority of all the cases under observation (sixty-seven); therefore, I will speak of them first. The remedial agents in order of their importance were as follows: Balsam of Peru, red wash, creolin, silver nitrate, ichthyol ointment, lycopodium.

Balsam of Peru.—This is perhaps a stimulant most frequently used, though not always advantageously; for it must be remembered that it is often more irritating than stimulating. Therefore, it often happens that after a single application the ulcer is found in a worse condition than it was before, to say nothing of the pain caused the patient. Hence, whenever an ulcer is surrounded by an area of inflammation, as is often the case, and when this area is tender and painful to the touch, balsam of Peru should be abandoned and one of the milder stimulants employed. Some ulcers will remain indifferent to the application of balsam. They do not tend to become worse, neither do they show any improvement. However, a great many cases were treated with this agent, and it is beyond doubt that balsam of Peru is a valuable stimulant in appropriate cases. The measurement showed that the ulcers treated with it decreased on an average from two or three and one-half mm. per week.

Red Wash.—This is a much milder stimulant than balsam of Peru, and possesses one advantage over it, in that it is not irritating, and is therefore particularly adapted to those ulcers surrounded by an area of inflammation. But if an ulcer is found to be indolent and of long standing, other means must be resorted to. It is especially beneficial for traumatic ulcers and raw wounds, and can be used when there is any objection to iodoform.

Creolin.—This is perhaps the most efficient drug for gangrenous or sloughy ulcers. It is somewhat irritating and causes itching, but its advantages outweigh its disadvantages. As long as an ulcer presents an area of gangrenous matter with a most offensive odor, a stimulant

would be out of place and nothing would be accomplished by it. The first step is to remove all the slough; creolin accomplishes this most admirably, and at the same time time disinfects the wound. A solution of ½ per cent. strength should be used, 1 per cent. in more advanced cases. The ulcer being cleaned, one can proceed to apply stimulants.

Silver Nitrate.—The silver nitrate stick was employed with the intention of stimulating the edges of the ulcer and thereby causing a growth of new epithelium. In some cases the end sought was obtained, but in a greater number of cases the effort was futile, even when the ulcer itself was touched with the stick. This procedure, being somewhat painful, should be abandoned as soon as it becomes evident that the ulcer fails to decrease in size.

Ichthyol Ointment.—This may be compared to balsam of Peru, being both stimulating and irritating. Though it may benefit some ulcers, it produces a most intense itching, not observed when applied to sound skin. It does not present any advantages over the other stimulants. Its main use was application in a combination with zinc oxide or boric-acid ointment to the inflamed or tender skin surrounding the ulcer.

Lycopodium.—If an ulcer is accompanied by a wet eczema, or if the ulcer itself discharges a foul secretion, a stimulant would not only be out of place, but might tend to produce a true dermatitis with exacerbations of the ulcer itself. An ointment would tend to block the secretion while not diminishing it. Hence, a bland drying-powder is indicated. Lycopodium or any other non-irritating drying-powder can be used. It will certainly not heal the ulcer and that is not to be expected, but it may dry up the wet eczema. I found in lycopodium a valuable agent for this purpose. Boric-acid powder produces itching and is consequently irritating.

Syphilitic Ulcers.—The second class of ulcers are either due to constitutional or local syphilis. They are not so persistent as those of the preceding variety and are not so painful. The statement that syphilitic ulcers will heal by themselves if internal treatment is administered is not quite correct. Without local treatment a syphilitic ulcer will, in the majority of cases, tend to spread and to destroy the deeper structures. One may apply either the blue ointment or the red wash and creolin. The application of a saturated solution of alum acetate will give excellent results and should be made often, especially if a discharge is present. A few applications of this solution removed discharge and slough, leaving a clean and healthy wound, and the complete closure of the ulcer will then be a matter of two or three weeks.

Traumatic Ulcers.—Under this heading all those ulcers are included which are caused by some injury, be it a kick or a blow, fall, burns, wounds healing by second intention, and vaccination ulcers. The most frequent site of the traumatic ulcers under observation was the anterior surface of the leg; next in frequency was the elbow; and a few occurred at some other part of the body.

A traumatic ulcer on the anterior surface of the leg, particularly if caused by a kick or a fall, will heal very slowly; stimulation is of no avail save in exceptional cases. The healing qualities of alum acetate as observed in syphilitic ulcers are almost wholly absent here. (This fact is, perhaps, of some importance for the diagnosis of ulcers the cause of which is uncertain. If such a traumatic ulcer responds readily to the treatment of alum acetate it is very probable that this ulcer is of syphilitic origin.)

As a matter of choice one may apply either the boric-acid ointment or ichthyol ointment; or if stimulation is desired, red wash, creolin or balsam of Peru. Sometimes the application of the silver nitrate stick will eventually hasten the closure of the wound. If a traumatic ulcer is suppurating, the application of ointments should be abandoned and a wet dressing applied. With regard to vaccination ulcers, the application of a wet dressing or boric-acid ointment will answer best.

Summary.—The observation of these cases has shown that (1) the rate of the growth of epithelium is in direct proportion to the size of the ulcer; (2) in the majority of cases the average growth of epithelium is from two to three and one-half mm. per week; the range is 1.4 to 10.5 mm. (traumatic ulcers not included); (3) the time required to heal an ulcer is in no proportion to the duration of the ulcer; an ulcer of four months' standing does not heal quicker than one of four years' standing, other conditions being equal; (4) the rate of growth of epithelium in traumatic ulcers is extremely irregular; it is in no relation to the size or duration of the ulcer; the average growth per week is about five mm.; the range is from 1.4 to 8 mm.

I wish to express my most sincere thanks to Dr. E. M. Foote, chief of the surgical clinic, for supplying me with the necessary cases, and to the clinical staff for their kind assistance.

MEDICAL PROGRESS.

OBSTETRICS AND GYNECOLOGY.

Treatment of Inversion of Uterus.—The treatment of early cases is sufficiently well understood. The treatment of chronic cases, in which the cervix has contracted and involution is completed and in which adhesions have formed within the funnel of the inverted uterus, is not so easy to determine. Constant elastic pressure may be successful if used early and faithfully; but there remain inveterate cases which demand surgical relief. Three procedures are applicable: (1) The method of Thomas, in which the abdomen is opened, the funnel dilated and the uterus replaced; (2) the method of Kuestner, which reaches the funnel through an opening from the vagina into the cul-de-sac of Douglas; (3) vaginal amputations of the uterus. The weight of surgical authority, according to E. W. Cushing (Boston Med. & Surg. Jour., Feb. 13, 1902) seems to be against the operation of Thomas. Although previously content with vaginal hysterectomy in these cases, Cushing decided after reconsidering to

adopt Thomas' method in a case which came to him for treatment, for the following reasons: The method had never been tried since the introduction of the Trendelenburg position, which posture will presumably be of as much advantage in treating inversion abdominally as in performing hysterectomy. Adhesions can be separated more carefully from above. The ligaments which support the uterus will be found elongated and weakened, and ventrofixation will avert recurrence of the inversion. Less blood will be lost if all manipulation be done from above. The whole operation will be cleaner. On these *a priori* grounds, Cushing treated his case by the method of Thomas, and his experience was in entire conformity with his anticipations. The position of Trendelenburg being used, Thomas' operation becomes the operation of election, being easier, safer, cleaner and more surgical and satisfactory than any other.

Vesicovaginal Fistula.—A new method of operating in this condition, with the report of a case, is described by A. L. Smith (Phil. Med. Jour., Feb. 15, 1902). The patient presented a tear of the bladder, vagina, and cervix, about two inches long, extending from back of the spincter vesicæ down through the os. The steps in the operation are briefly as follows: After incision of the vagina in front of the cervix, the bladder was pushed back from the uterus, the laceration of the cervix being repaired by Emmet's trachelorrhaphy. The fistula was then cut at the junction of the bladder and vagina. The tear in the bladder was sewed up with catgut (chromicized), the muscular wall only being included, this forming a strong ridge. The vaginal slit was closed with interrupted sutures of silkwormgut, passing through the vagina, then through the muscular wall of the bladder about half an inch to one side of the tear and out on the other side of the vagina, thus displacing the bladder to one side so that the two suture lines did not come together. The advantages claimed are as follows: (1) No stitches are left in the mucous membrane as foci for calculi; (2) instead of a narrow edge for union in the bladder, a thick ridge is secured, and (3) the lines of suture in the bladder and in the vagina are not approximated, a stronger result thus being obtained.

Abdominal and Vaginal Celiotomy.—No unchangeable laws governing the choice between these two methods of operating can possibly be laid down, but the general principles are expressed as follows by H. MacNaughton-Jones (Med. Press & Cir., Jan. 22, 1902). In the abdominal method there is a better field of view, greater command over the affected organs, fuller power of exact dealing with the ovaries and tubes in carrying out conservative measures and in breaking up extensive adhesions. Knowledge of the size of cysts, sacs or solid growths greatly facilitates their treatment. There are, however, cases in which the vaginal route is the operation of selection. In simple parovarian cysts and small cystic tumors of the ovaries, in cases of cystic disease of the adnexa, complicating small interstitial myomata and subperitoneal myomata in the cul-de-sac of Douglas, in adnexal trouble, complicating retrodeviation of the uterus—in short, in cases which are more or less recent, with movability and nonadhesion of the mass, with the uterus itself mobile—by Martin's operation of anterior colpotomy the uterus can readily be turned into the vagina and the adnexa removed if necessary. Should difficulty arise, the advantage of removing the mass in pieces by claw, forceps and scissors, by Doyen's drill, by slicing the uterus into fragments (Landau's method) can be resorted to. As a rule, however, the frequency of cancer and tuberculosis in this region makes it advisable not to follow this method oftener than is necessary. When in doubt the abdominal route is much the better. Conservatism in operating on the adnexa is always very important and is really the source of modern success.

Heart Disease in Pregnancy.—The mortality among women with cardiac disease who have become pregnant varies from 20 to 55 per cent. The condition, therefore, is one of the most grave and fatal of all those which confront the obstetrician. Prof. Webster (Medicine, Feb., 1902) has considered it in all of its phases, but with especial reference to the therapeutic indications. There are a number of factors, each of which must be individually appreciated, which serve to invalidate the heart in pregnancy. The enormous increase in the vascular area and in the total quantity of blood imposes an additional mechanical strain on that organ. The deterioration in the blood, anemia, etc., lead to malnutrition of its musculature and to a certain degree of paresis. The distention of the abdomen limits the oxygenating power of the lungs, impedes their auxiliary action in circulation, and blocks the pulmonary circulation. All cardiac cases, therefore, suffer to a greater or less degree during pregnancy. If hypertrophy of the heart be sufficient, the disturbances are slight, manifesting themselves only as palpitation, cough, dyspnea, and slight edema. In the cases which fail to compensate properly, the most serious symptoms may supervene. The woman may then succumb to heart disease during pregnancy, or abortion may occur. If the case goes on to labor, this may also prove fatal to the woman. The treatment of all cases of heart disease should be prophylactic in the early stages. If abortion threaten, or if signs of beginning cardiac insufficiency appear, but, especially, if these two conditions occur together, the physician should always be ready to end the pregnancy in the interest of the mother. The labor, whether premature or at full term, demands the most careful management. If the patient stand it well, she may be permitted to go through the first stage without interference. If signs of heart failure appear, she is to be chloroformed, and the cervix dilated with Barnes' bags or manually. The second stage presents similar indications. The woman is to be assisted, if necessary, by the forceps. The best stimulant during this stage is nitrite of amyl, or nitroglycerin, which neutralizes the increasing strain on the heart, due to the additional blood thrown out of the retracting uterus, by diverting it into the dilated abdominal vessels. The third stage is that most to be feared. Strangely enough, there is one set of observers which attribute the danger to anemia of the heart, while others hold that the patient dies from overdistention. The author belongs to the latter group: "The whole vascular area of the body has been greatly reduced by the contraction of the uterus; the extra strain on the right side of the heart may be too much for it;" overdistention and paralysis supervene. The indication is plain. The third stage is to be prolonged, at the cost of considerable loss of blood, in order to give the cardiovascular mechanism a chance to adapt itself to the altered conditions. The placenta is gradually separated by the fingers, and uterine contraction should be stimulated only if the loss of blood becomes extreme. During the puerperium, the treatment is limited to careful nursing, and symptomatic treatment.

Extra-uterine Pregnancy.—When a diagnosis of this condition is made soon after the rupture and before the patient has lost much blood, an operation should always be performed, but, unfortunately, the diagnosis is usually not certain till the patient has become so exsanguinated that any interference would probably result in death. J. W. Elliot (Med. Rec., Feb. 22, 1902) has operated successfully upon twenty such cases and is convinced that there is very little danger in waiting

a day or two for the patient to recover her strength, for he says it is very rare for them to bleed to death at the time of rupture. They almost always subsequently regain sufficient strength to warrant an operation and usually stand it very well. He believes, however, that if they are not operated upon, the chances of another hemorrhage are very great; it is almost certain to occur. In operating he finds the uterus as soon as possible and, after ligating both ends of the offending tube, rapidly removes it, leaving the blood clots in the abdomen to be absorbed. Any unnecessary delay or manipulation is hazardous.

Spontaneous Rupture of the Uterus.—Rupture of the uterus during pregnancy or parturition is, happily, a comparatively rare occurrence. The signs of threatened rupture are usually so clear that R. M. Murray (Jour. of Obst. & Gyn., Brit. Empire, Feb., 1902) thinks that its occurrence is a reproach to the obstetrician in whose hands the case is. The rupture is either traumatic or spontaneous. Under traumatic causes must be included all cases brought about by mechanical violence, such as the forcible introduction of the hand into the uterus, the unskilful performance of version, and the improper use of forceps, etc. These may be classified as internal traumatisms. External traumatism is a term to be applied to those cases of rupture due to blows on the abdomen and to falls. Spontaneous rupture has for its immediately determining cause the contraction of the uterus. The great majority of these cases are, however, associated with some condition arising from an abnormality of either of the two factors of labors—the "passage or the passenger." Examples of the first are found in cases of rigid os and contracted pelvis; of the latter, hydrocephalus or malpresentation. Thanks in the main to the classic work of Bandl, the mechanism by which the process occurs is known to all. With an obstruction to the dilatation of the os, the lower uterine segment becomes thinned out, while the muscular tissue of the upper segment gathers itself together into a sort of cap on the upper pole of the uterine mass. The strain on the lower uterine segment increases until it gives way, in most cases not far from the junction of the two segments. The tear tends to run across the long uterine axis. In contracted pelvis the location of the tear is determined by the grinding of some portion between the fetal head and the pelvis. On the other hand, spontaneous rupture may occur in certain cases without any process such as that described by Bandl. There may be no abnormal obstruction to the escape of the uterine contents; the labor may only have begun, and, moreover, the tear may have no special relation to the lower uterine segment, though it may, by extension involve it, too. Three sets of cases may be found in this group, viz.: (1) Interstitial pregnancy rupturing at the fifth or sixth month, even following the first labor pain. (2) Spontaneous labor following abnormal conditions, such as bicornate uterus, myomata uteri, and a uterus which has previously been the subject of a Cesarian section. (3) A small number of cases have been reported in which rupture took place at the beginning of labor in a uterus of normal conformation, and in which there was no gross complication. Cases of this sort have been recorded by Ingersler, Hofmeier and Simpson. The first two failed to show any histological reason for the accident. Simpson's case showed signs of fatty degeneration of a marked degree.

Carcinoma and Pregnancy.—Pregnancy complicated with cancer of the cervix is unfortunately much more common than is generally supposed, says J. E. Gemmell (Jour. of Obst. & Gyn., Brit. Empire, Feb., 1902). Solowij estimated that it occurred once in two thousand labors; in most instances it is demonstrated in the earlier months of pregnancy and ends in abortion or is treated at once. In early cases it is the generally-accepted view that the uterus and its contents should be removed as a whole with as little delay as possible by vaginal hysterectomy; this is quite feasible up to four or four and a half months, and has been performed at the sixth month. The author finds in looking over the literature that pregnancy and puerperium favor the growth of the neoplasm, hence early operation is advised. This is more serious in the later months. Natural labor permits the introduction of other septic infections and the bruising of the tissues. After the uterus has been emptied, it must be removed as soon as possible, as involution and absorption favor the spread of carcinoma and the production of metastases (Olshausen). The best operative results have followed radical operation by the vaginal route. Whatever the treatment, the results are unsatisfactory. The choice of the route depends upon the surgeon and the individual case. Abdominal hysterectomy, with removal of the os *per vaginam*, is preferable to panhysterectomy. The methods of operation are: (1) Cesarian section and hysterectomy by abdominal route (Freund); (2) Cesarian section followed by supravaginal hysterectomy, suture of abdominal parietes, and extirpation of the cervix *per vaginam* (Zweifel); (3) Cesarian section, suture of the uterus and abdomen and then vaginal hysterectomy (Olshausen); (4) Cesarian section and total hysterectomy *per vaginam* (Dührssen); (5) panhysterectomy and the extraction of the child after removal of the uterus (Bland-Sutton).

Cesarian Section under Local Anesthesia.—A most interesting case of this variety is reported by H. R. Spencer (Jour. of Obst. & Gyn., Brit. Empire, Jan., 1902). The patient was twenty-seven years old, a dwarf, and had a conjugata vera of 2½ inches. Twice previously this operation had been performed under general anesthesia. Before operation, Schleich's eucaine solution was injected along the line of the previous scars for about six inches. The scar was then incised for about four inches and the incision enlarged with scissors. The child was delivered in one minute and fifteen seconds; the placenta and membranes were removed in two minutes and thirty seconds from the commencement of the operation. The uterus and abdominal wall were then sutured in the usual way. The whole operation took twenty-five minutes till the dressing was applied. The first portion of the operation (incision and delivery) was practically painless; the sewing up of the wound in the uterus was also quite painless, but there was a good deal of pain in the sewing up of the abdominal wound, especially in stitching the fascia. The mother made quite an uneventful recovery; the child weighed 6 lbs. 13 oz., was vigorous at birth and has remained so. The author does not advise this method of performing Cesarian section, especially if the patient has "nerves."

PATHOLOGY AND BACTERIOLOGY.

Vital Blood-Staining.—As the result of their experiments in staining living blood-cells by various agents, Rosin and Bibergeil (Deut. med. Woch., Jan. 23, 1902) find a corroboration of the theory that living tissues do not take up stains for which those declining in vitality show a marked affinity. It may be possible to attain in this way a differentiation by means of various stains of the degree of the loss of vitality which any tissue has undergone, as the authors believe they have shown in healthy human blood. In comparison with unstained specimens they desire to call attention to the convulsive amœboid movements of the leucocytes in staining with eosin and other acid stains, to the peculiar variation in the action of the methylene-blue

on the white blood-cells and the differential staining of blood-plates by this means; also to numerous variations in the staining of the granules and chromatin network of the nuclei by different anilin dyes.

Preservation of Secretions.—A simple method of preservation of specimens for purposes of clinical microscopical diagnosis is recommended by R. Rohnstein (Fortschritte d. Med., Jan. 15, 1902). It applies particularly to the various bodily excretions and its principles depend on thorough sedimentation with consequent displacement of the supernatant albuminous fluid by a solution with fixing and preserving properties and at the same time free from albumin. Its formula reads: Formol, 20 c.c., glycerin, 125 c.c., distilled water, ad 200 c.c. Thes pecial application for urine is as follows: The specimen is allowed to stand for from twelve to twenty-four hours in a conical glass with a small quantity of thymol added. The fluid is siphoned off and the sediment again washed with a like quantity of distilled water and allowed to settle for another day. This dissolves all the albumin. When the liquid is poured off, a 2-per-cent. solution of formalin is added, in amount about two or three times the quantity of the sediment, shaken, and the mixture allowed to settle. About half is then poured off and the same quantity of the preservative mentioned is added. With appropriate modifications, stomach-contents, sputum, feces, and exudates can be thus treated; the method has the advantage of obviating all actual handling of the material, and does not cause any morphological changes in the tissue or cellular elements.

Diabetes Mellitus.—The pathogenesis of diabetes mellitus is still unknown, but it is probable that there are several pathological conditions which may cause the disease. C. E. Nammack (Med. Rec., Feb. 15, 1902) reviews the various theories which have been advanced. The principal ones relate to a perverted glycogenic function of the liver cells, to perverted metabolism in the tissues generally, to alterations in the pancreas, and to trophic disturbances. There are two liver theories, one that the liver cells are unable to convert the sugar into glycogen and the other that the cells cannot hold the glycogen after it is formed but allow it to be transformed too rapidly into sugar. The perverted-metabolism theory supposes an inability on the part of the muscles, glands, and other glycogen savings-banks to appropriate the sugar which is brought to them in the blood. Since 1877, when Lancereaux called attention to the pancreas, various lesions of this organ have been found in etiological relation to the disease, but in some cases extensive distruction of the gland has failed to cause diabetes and the simple diversion of the secretion from the intestine also results in no glycosuria. It is, therefore, supposed that the pancreas secretes into the blood some glycolytic ferment necessary for the proper conversion of sugar into glycogen. Besides mentioning the various alimentary toxic and traumatic glycosurias, the author believes that the strenuous life which is being led at the present time acts as an important factor in inducing the disease, and, although very difficult to prove, it is probable that trophic nervous disturbances are responsible for many cases of diabetes.

Effect of Liquid Air on Pathogenic Bacteria.—This subject has been taken up experimentally by C. M. Belli (La Riforma Medica, Jan. 25, 1902). Extreme cold, produced by evaporation of liquid air, not only prevented multiplication of germs, but decreased their number, the least resistant forms succumbing to its influence. To determine the possibility of bactericidal properties inherent in liquid air, cultures were directly exposed to its action by suspension in a vessel containing it. Inoculation of animals with cultures so treated showed that liquid air does not destroy the vitality of the more virulent bacteria.

Bacteriology of Scarlet Fever.—That there is some important connection between scarlatina and the streptococci, hitherto found in many of its lesions, has been confidently asserted by many investigators. Baginsky and Sommerfeld (Archiv für Kind., Jan., 1902) report the constant finding of streptococci in the tissues and blood of scarlatinal cases. In no one of the many cases investigated at necropsy were the streptococci absent from the cardiac blood and the bone-marrow. Cultures taken from the membrane of patients with scarlatinal angina showed streptococci, admixed with pneumococci, leptothrix, etc.; in only five per cent. of the cases were they associated with the Klebs-Löffler bacillus. As to their morphology, which is of a distinctive character, the streptococci form chains of varying length. The single coccus is round, but frequently is flattened at right angles to the axis of the chain; examined closely it often resembles a diplococcus, but its morphology is subject to considerable variation. When subjected to the action of blood taken from patients convalescing from scarlatina, these streptococci failed in every instance to give the agglutination reaction.

Soaps of Lime and Magnesia in Urine.—Crystals of this sediment resemble those of tyrosin, but are larger and the spicules are more tapering. G. E. Pfahler (N. Y. Med. Jour., Feb. 15, 1902) reports three cases in which these crystals were found, but suggests no significance attached to their presence, except, perhaps, their relation to certain toxic influences. In one case the crystals were obtained during an outbreak of acute mania, but were not present at other times. The second case was one of abscess of the liver, and the third was one of cocaine-poisoning. They have also been reported in the feebly-acid urine of a case of puerperal septicemia.

The Suprarenals and Their Active Principle.—In a lengthy article H. Singer (Therap. Monatshft., Jan. and Feb., 1902) discusses our present knowledge of the suprarenal bodies. Much has been done in recent years to bring the importance of these organs into the foreground, but the question as to what their true function is still remains unanswered. The rich nerve-supply, derived from the celiac ganglion and suprarenal plexus, has been frequently commented upon. It is interesting to note that the organs are more highly developed in negroes and less so in anomalous conditions of the central nervous system, such as hemicephaly and anencephaly. Other anatomical peculiarities are the rapidity of circulation in the organs, so that the venous blood frequently is arterial in appearance, and the occasional presence of accessory adrenals. The adrenals themselves are of relatively large size in the embryo and the active principle, which is capable of producing a green color with ferric chloride and which raises blood-pressure, is already secreted during the second half of gestation. Electrical stimulation of the cortex is without effect; faradic irritation of the medulla leads to local contraction of the renal vessels and diminished diuresis. Removal of both organs is always fatal except in animals, like the eel, which have no medullary substance, and in man any disease leading to their destruction is followed by Addison's disease, except sometimes in carcinoma, when it seems as if the cancer cells could continue the function of the normal organ. When one side only is extirpated, a compensatory hypertrophy of the remaining gland takes place. The question as to whether transplantation of foreign suprarenal tissue can save life is not definitely settled. The most prominent symptoms caused by even minute doses of the ex-

tract of the medullary part of the organ are local anemia and considerable but transient increase in blood-pressure, while the pulse is first accelerated and then slowed. Large doses are followed by a marked lowering of blood-pressure, arhythmical pulsus bigeminus and, finally, stoppage of heart-action; excessive doses cause sudden and rapid cardiac paralysis with strongly-dilated right ventricle and with empty left ventricle. Respiration is increased with prolongation of expiration, later slowed with ultimate stoppage in expiration. The other symptoms are of less importance, pareses, diminished and later increased diuresis, etc. The search for the true active principle has been diligent. Besides albuminous principles in the form of globulins, lecithin, inosit, xanthin, leucin and neurin in combination with glycerophosphoric acid have been found. The substance affecting the blood-pressure is soluble in water, dilute alcohol, glycerin and weak mineral acids, but insoluble in ether and chloroform, and its isolation seems to be fraught with difficulties owing to its labile nature. A characteristic reaction is found in its behavior with ferric chloride, which gives a green color, turning rose on the addition of alkalies or free halogens. Though pyrocatechin gives a similar reaction there are many points of difference which make it clear that the two are not identical. Two substances have recently been isolated—suprarenin and epinephrin, but the results obtained with them do not make it appear probable that they represent the full activity of the gland. They are, however, recommended in diseases of the eyes and nose and as hemostatics.

Mast-Cells.—The fact that those cells with large basophile granules found in chronic inflammatory processes and similar ones occurring in the blood are not identical is pointed out by L. Michaelis (Münch. med. Woch., Feb. 11, 1902), who regrets that the name mast-cells is applied indifferently to both. A peculiar property of the granules of the mast-cells, which was long overlooked, is their solubility in water which is least marked in those normally found in the blood, but much more so in the cells of myelogenous leucemia, so that no aqueous and especially no alkaline dye can be used to identify them, even if previous fixation were perfect. The following method gives the best result: Fix the smears by means of alcohol or heat; stain for a few minutes in a saturated solution of thionin in 50 per cent. alcohol; wash in 50 per cent. alcohol; dry and mount in Canada balsam. The granules will then appear reddish-brown and the nuclei blue. In order to demonstrate the cells in tissues, embedding in paraffin or celloidin must be avoided; the tissues, after they are hardened in alcohol, are cut with a razor, stained, passed through alcohol and mounted in the usual way. The labile nature of the granules is thought to be a sign of their unripeness. In another article in the same journal A. Wolff states that he has been able, by means of these methods, to demonstrate mast-cells in tuberculous pleural exudate, which proves their power of active emigration.

SURGERY.

Joint Conditions.—The results of good treatment are nowhere in the body more apparent to the patient than in joints, for the self-evident reason that such outcome is associated with his power of self-support. R. L. Swan (Medical Press & Circular, Jan. 29, 1902) speaks emphatically against temporizing with tuberculosis of the joints and advocates prompt operation. He has had several cases do well under this treatment with complete or nearly complete recovery of total function. In his original operation he opened the joint freely by cutting across the patella, making first a flap on the skin, convex upward. The patella in young subjects is usually rather easily divided with a knife, when the whole of the interior of the joint comes widely into view. The synovial membrane is usually found congested and its branches edematous. He irrigates the joint for a considerable time with saline solution, removes every particle of loose, flocculent material, dries off the surfaces, applies pure carbolic acid with a swab, and again irrigates very freely as before. The joint is then closed, the patella having been sutured with catgut and the skin with silkwormgut without drain. A plaster-of-Paris bandage is then applied over the dressing. In thirteen subsequent cases he has modified this procedure as follows, with equal success and without as much damage to the joint. The incision is made convex backward, reaching from the lower part of the inner edge of the ligamentum patellæ to a point (in the adult) about two inches above the base of the patella. After the bleeding has been arrested the joint is laid open. In closing the wound three layers require adaptation and suture. First, the synovial membrane, second, a muscle layer, consisting of aponeurosis below, and aponeurosis and muscle above. He has not except in one or two cases used any drains, which he does not consider necessary if the wound is dried and rendered thoroughly aseptic before closing. Analogous to tuberculosis of the knee-joint is the same disease in the bursa, which lies beneath the ligamentum patellæ, where it makes an indolent swelling, slowly increasing and obliterating the hollows which naturally exist on either side of that ligament and occasionally reaching such great dimensions as to interfere with the use of the limb to a marked degree. The chances of the knee-joint itself becoming involved in the presence of such a bursitis are, of course, very great. The need of prompt operative interference in this condition is therefore manifest.

Foreign Body in the Esophagus.—The frequency with which this condition appears in childhood renders knowledge of every case as it appears in literature advisable. C. Peacock (Lancet, Feb. 1, 1902) reports the following interesting example. On December 21, 1901, a six-year-old boy was admitted to the Miller Hospital, suffering from a brassy cough, regurgitation of food and fever. The history showed that in July, 1901, the child had swallowed a ha'penny piece. Vomiting occurred immediately, but was not repeated. For the next three weeks the patient said that he could "taste the ha'penny," complained of pain under the chin whenever he took food, but at the end of that time these symptoms disappeared until December, when the patient again had trouble. At the beginning of December a dry, clanging cough, difficulty in swallowing and in breathing, and a regurgitation of food appeared and as the symptoms steadily grew worse he was brought to the hospital for treatment. Examination by the X-ray showed a coin caught in the esophagus at the level of the third rib, with the flat surfaces facing anteriorly and posteriorly. On January 1st, the patient was anesthetized and an attempt was made to remove the coin with a coin catcher. As this effort failed the probang was tried and at the second effort the coin was found in the pharynx. It was black in color and entirely covered on one surface with inflammatory exudation. Immediately after removal of the coin the patient's breathing became easy and his recovery was rapid. Feeding by the rectum was at first thought advisable, but owing to his age was not successful. Mouth feeding was then cautiously begun and after two days was increased in quantity at each meal. At the end of the week he was allowed to have solid food. His recovery was complete, there being no sequela whatever in evidence.

Pathological and Clinical Significance of Abdominal Pain.—In most acute abdominal lesions pain is

the earliest, the most persistent, and the most significant sign. When hemorrhage is the only lesion, pain is the expression of violence done to the peritoneum. The commonest cause, says M. H. Richardson (Boston Med. & Surg. Jour., Feb. 20, 1902), is the rupture of an extra-uterine pregnancy. The pain is often knife-like and paroxysmal; it is felt low down in the pelvis and is excruciating. Such a pain, occurring in women of childbearing age, should suggest ruptured ectopic gestation. If there be the least sign of hemorrhage and the least confirmatory sign of pregnancy, the abdomen should be opened immediately. When, after ovariotomy, the pedicle slips out of the ligature and the patient bleeds to death, there is as a rule no pain; when an extra-uterine sac bursts the pain is excruciating. In both cases there is simple abdominal hemorrhage without sepsis; the difference is in the pain. The pain of acute pancreatic disease is not sufficiently distinctive to differentiate it from the pain of other epigastric lesions. In rupture of the liver, spleen or kidney, pain is at times insignificant and at other times prominent. The severe pain of initial violence, increased by hemorrhage, gradually subsides as the signs of hemorrhage become marked. The diagnosis in traumatic cases must depend on signs of hemorrhage following a violent blow, rather than upon the character of the pain. The pain of ovarian torsion is that of a suddenly enlarging and sensitive ovarian tumor—hemorrhage, with its familiar signs, sometimes augmenting the shock of ovarian torsion. In the hemorrhage of gastric or duodenal ulcers pain is not present unless there be perforation into the peritoneal cavity. The pain of abdominal lesions dependent upon rapid and extensive extravasations of septic material, is sudden, sharp and overwhelming. It is at first continuous and violent, then paroxysmal and intermittent or dull and continuous; at first localized, it becomes generalized as the septic material spreads. In general peritonitis with excessive distention, pain usually subsides; it may disappear entirely when the general condition is hopeless. The pain of general peritonitis causes anxiety and shock. In no case of simple functional pain is there the effect upon the mind of grave apprehension or of constitutional shock upon the body. It is what precedes or accompanies pain, or, more often, what is conspicuous by its absence, that gives to pain its real significance. If, with overwhelming pain, there be rigidity of the abdominal muscles and general tenderness, and if the pulse be rapidly rising, immediate exploration is warranted. Rarely does the surgeon see such a combination with normal or subnormal temperature, for in an almost incredibly short time the temperature rises and distention, vomiting and obstipation develop. Large perforations of the bowel, appendix and stomach, all have the same course. The pain of appendicitis usually starts about the umbilicus or in the epigastrium, but soon after the onset it becomes localized in the vicinity of the appendix. In any variety of abdominal extravasation it is common for the pain to start at or about the umbilicus, or in the epigastrium, and to become localized in a short time near the seat of the lesion. A consideration of age, previous history, habit, etc., will lead the way to a differentiation of cholecystitis, gastric ulcer or pancreatitis, as the cause of acute, sudden epigastric pain.

Closure of Abdominal Incisions.—It is estimated that ten per cent. of all cases of laparotomy are followed by veneral hernia. I. S. Stone (N. Y. Med. Jour., Feb. 8, 1902) gives the following as the most frequent causes of herniæ: (1) Wound infection resulting in loss of fatty and connective tissue and consequent separation of wound surfaces; (2) improper wound coaptation or failure to unite corresponding layers; (3) enteroptosis with pendulous abdomen; (4) severe vomiting or straining before complete union. One very efficient factor in the causation of herniæ is the presence of long peritoneal flaps which have been more or less bruised during the operation. Their nutrition is poor and they may either be forced upward between the two wound surfaces or from their looseness may allow pocketing of serum and blood between them and the abdominal wall. He advises, therefore, the removal of all excess of peritoneal flaps and also of all loose or necrotic pieces of muscle or fat. Each layer should be closed separately with buried catgut, so that peritoneum, fascia and muscle layers meet corresponding ones on the opposite side. Through-and-through sutures are very effective, but should be passed in such a way that, while piercing the deep fat and muscle layers, they are at a considerable distance from the wound surface, coming out near the wound at the skin and peritoneum surfaces. Pressure is thus exerted upon the deep layers as much as upon the peritoneum and skin.

Stricture of Esophagus.—A case of complete stricture of the esophagus following the ingestion of concentrated lye is reported by H. M. Taylor (N. Y. Med. Jour., Feb. 8, 1902), who found that, after doing a gastrotomy and passing a bougie from above downward, the stricture was at least one inch in length and so dense that no opening could be found. The stricture was near the lower end of the esophagus so that external esophagotomy was impossible; a sharp-pointed bougie, carrying a piece of silk, was finally forced through. The Abbe saw-string method was then employed until a larger bougie could be used. The patient was fed through a gastrostomy wound and the dilated and inflamed esophagus was allowed to heal. When the inflammation had subsided the child could easily swallow a little liquid food and by gradual dilatation a good-sized opening was soon produced in spite of the fact that the passage of bougies had been unable to prevent the original closure of the esophagus. He advises earlier operations in such cases, in order that the esophagus may be allowed to rest and that food be taken through a gastrostomy wound to prevent extreme wasting. Systematic passage of bougies should be continued for years, if not for life.

Circular Incision in the Operative Treatment of Varicose Veins and Ulcers.—The circular incision is warmly recommended by C. Weizel (Berl. klin. Woch., Feb. 10, 1902), who has operated according to this method in 22 cases of varicose veins and ulcers of the lower extremity. In every case, so far as Wenzel has been able to ascertain, cure was permanent. Some of the cases had resisted other methods of treatment for long periods of time. As a rule, the incision is made at the juncture of the lower and middle thirds of the thigh; the vessels and recognizable cutaneous nerves are avoided. The veins are then divided one by one and the upper and lower cutaneous margins are approximated by a running suture. No drainage is required. In cases of ulcus cruris the greatest caution must be exercised to prevent infection of the operative wound. If possible, a dressing should be applied to the ulcerating area and left in place at least until the time of removal of the stitches and, if possible, until the circular incision has entirely healed.

Tuberculous Peritonitis.—The results of operation upon 28 cases of tuberculous peritonitis are reported by Bottomley (Amer. Med., Feb. 15, 1902) from the Boston City Hospital. The operation consists typically in opening the peritoneal cavity, evacuating the fluid, and closing the wound. In view of the fact that the uterine

adnexa furnish the point of origin of the disease in 25 per cent. of the cases, the question of the advisability of their removal is very important. If the peritoneum covering these organs be affected only as part of the general miliary peritonitis, there is no good reason for disturbing them. If, however, there be tuberculous salpingitis or oöphoritis, and if removal be not too difficult, they should be taken out. As regards omental masses and enlarged glands, the outcome of these 28 cases shows that they ordinarily cease to give trouble after simple laparotomy and need not be dealt with separately. Fibrous bands, which threaten intestinal obstructions, are to be divided. Drainage not only is of no benefit, but is apt to lead to permanent sinuses and fecal fistulæ. The immediate result of the operation is almost always an improvement, at least in the general condition. There is a diminution of the pain and of the distention and a fall of temperature. Of the 28 cases, 11 were cured, *i. e.,* were free from symptoms of the disease one year after operation; two were improved; four could not be traced; 11 died in from one to four months after operation. Thus, a cure may be reasonably expected in from 30 to 40 per cent. of all cases. According to most authorities, operation is attended by the best results in the ascitic form of the disease; in this series, operation on the fibrous variety gave equally good results. The prognosis in the ulcerative form is always bad.

Surgery of the Pancreas.—Five years ago it would have been impossible to give a detailed account of the surgical treatment for diseases of the pancreas. Such treatment simply did not exist. To-day, however, it has been possible for Roswell Park (Amer. Med., Feb. 15, 1902) to describe a well-planned procedure for each of the conditions which arise in connection with this organ, and for the various complications which present themselves during the course of an operation. There are five routes by which the organ may be approached: (1) Through the lesser omentum, above the stomach; (2) through the greater omentum, below the stomach; (3) through the transverse mesocolon; (4) through the liver, with a thermocautery, and (5) through the loin, retroperitoneally. The treatment of the various conditions is as follows: Acute traumata are to be treated on general principles, by checking hemorrhages, suturing all lesions of continuity and draining. The difficulty consists in diagnosing such injuries, on account of the depth of the organ and the obscurity of the initial symptoms. Park holds that if a wound be so placed as to make injury of the pancreas even probable, it is proper to make a high laparotomy and explore the organ through the gastrocolic omentum, without reference to the injury to other viscera. Drainage may be made anteriorly or posteriorly through the loin, or in both ways. The operative treatment of tumors is confined to such as occupy the splenic end; excision is of course indicated, although the necessary ligation of vessels may imperil the life of neighboring viscera. Cysts of the pancreas are peculiar by reason of the extremely dense adhesions which they contract. The rare pedunculated forms are to be extirpated. In most cases, the cyst is tapped with the trocar, sewed to the abdominal wall, and drained. There follows a very prolonged and tedious recovery. Pancreatic calculi are always to be sought for during the course of operations for cholelithiasis. If palpated, they may be expressed into the duodenum or removed by incision into the duct or gland. Acute pancreatitis has been divided into a number of types by pathologists. All of these forms, however, betray themselves by the same symptoms, namely, those of an acute epigastric peritonitis, and demand the treatment proper for that condition. The pancreas having been exposed by either the supra- or the infragastric route, all foreign matter, such as clot or pus is removed and necrotic portions of the gland are excised. Drainage should be made posteriorly. The treatment of subacute pancreatitis practically coincides with that just outlined. The treatment of chronic pancreatitis consists in locating and removing all calculi from the biliary and pancreatic ducts. Park closes this very brilliant review of the present aspect of the surgery of the pancreas with the admonition to operate early and promptly: "When in doubt, operate."

MEDICINE.

Intestinal Perforation by Ascaris.—The possibility of ascaris lumbricoides passing through the normal intestinal wall has been an open question; most clinicians holding that an intestinal lesion prepares the way for perforation. Of special interest, therefore, is S. Solieri's (La Riforma Medica, Jan. 31, 1902) case of fatal purulent peritonitis of sudden onset, in which operation revealed perforation of the intestinal parietes by the ascaris, the passage of a number of the latter through the puncture being visible at the time of operation. Microscopical examination showed entire absence of localized degeneration or inflammation.

Variola Hemorrhagica.—A case which is interesting because it appears to show that variola in intrauterine life had rendered the patient insusceptible to vaccination for fourteen years, but that after a period of eighteen years it had afforded no protection against a fresh attack, is reported by W. G. James (Lancet, Feb. 1, 1902). The patient, a governess, seen first on January 1, 1902, complained of chill, pain in the back, nausea, nasal and bronchial catarrh, cough, furring of the tongue, overdue menses, a temperature of 103° F. and pulse 108. She had been working harder than usual and felt worn out. January 6th, she suffered from backache so severe as to prevent sleep and ordinary turning in bed. Constipation was present, for which she had taken medicine. On the evening of January 7th, she was relieved of some of the pain and passed a good night. On the 8th her menses appeared, her fever and backache became less and she felt much better. That night, however, the menses became more profuse and offensive, and later an eruption appeared on the face. On the 10th the skin of the whole face was red, inflammed, swollen, covered with vesicles, giving the idea of uniform scalding. Scattered over the neck, trunk, arms and thighs, were numerous small vesicles with reddened bases, among which were a few larger vesicles with dark brown centers, of which only half a dozen were counted. The tongue was coated with a thick white fur and on the left of the palate was a vesicle of dark brown color, about one-sixth of an inch in diameter. The catamenial discharges remained profuse, foul in character, and she was expectorating blood-stained mucus. She was removed to the hospital in the evening, but the bleeding from the uterus and lungs increased. She died January 13th. On inquiry the following facts were elicited: Six months before this patient was born her mother had suffered from a severe attack of smallpox, from which, however, she made a good recovery. The patient was born at full term and showed a few smallpox pits. In infancy she had been vaccinated and revaccinated unsuccessfully. At nine years of age she was vaccinated and revaccinated unsuccessfully and again at fourteen years of age without result. With such an experience her parents naturally thought she was immune and unfortunately she was not vaccinated when smallpox broke out last year.

The Medical News.

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SATURDAY, MARCH 15, 1902.

CANCER RESEARCH.

Destructive criticism is the notion prevalent throughout the six-part report of the Harvard Cancer Commission, read last month before the Boston Society of Medical Sciences. The pathologists carrying on this work find it greatly easier at present to determine what does not occasion cancer than to offer supported suggestions as to what conditions do produce it; and not unnaturally.

By the aid of excellent lantern slides and many well-made drawings, four researches were summarized, work in each case lasting throughout the year since the last report was delivered. Coccidia, molluscum contagiosum, torulæ, and blastomycetes had been studied by as many experimenters and observers and each found to be unconnected with carcinoma, however surely productive these are of various pathological conditions more or less similar to cancer.

In this respect the report agrees closely with that of a year ago. Quite as conclusive in a way and not a little more interesting was the description of the attempts made to inoculate the various varieties of this tumor into some of the lower animals. All of these attempted infections proved practically negative, irritation being produced to a greater or less degree, but cancer apparently never—nor, indeed, anything very similar to it.

This is, immediately speaking, a not very encouraging consequence of these laborious, highly technical and scientific studies for it does not promise any proximate solution of this one of the most important problems of pathology, and does not therefore suggest even the outset of a step toward relieving the "poor race of men" from this wretched scourge. Still, indirectly, the tendency of this work is distinctly progressive, for even by the thoroughly scientific principle of exclusion alone, with specific positive discovery, we may at last be taught the nature and cause of the disease. If with the constant advances in the methods of preserving, of serially cutting, and especially of staining tissues, no sort of parasitic cause can be discovered in all these years of study by so many hands and eyes and brains, one might in all rationality at length be justified in shifting the responsibility of these mortal growths from parasite to host, and to a disordered protoplasmic metabolism of a mode as yet unguessed.

Our knowledge of the nature of protoplasm has developed faster and more substantially within the last three years than in as many previous decades, and it now becomes fairly probable that the normality of any tissue depends on the normal or average balance obtaining between the solid particles of the protoplasm and the liquid in which these particles are supposed to be in suspension. Whether or not this balance is an electrical tonus, as appears at least possible, or of some other nature matters little; the balance or equilibrium is certainly a delicate one, very easily disturbed, both on the instant and structurally for relatively long periods of time. We are, especially, only just beginning to realize how important are various inorganic salts in this protoplasmic equilibrium. While, then, the recent contention of the European observer that cancer depends on an excessive ingestion of sodium chloride may not be true, no one is at present prepared to say and to demonstrate that it may not be due to an excess or deficiency of any one or more of the several inorganic salts which all protoplasm contains and which are, in part, positively known to be essential to normal metabolism and function.

This second annual report of the Harvard Commission certainly strongly suggests some such solution to this problem: it implies, even more forcibly than before, that there may be some protoplasmic lack which, it may be, even the now

very fashionable *ions* may be induced before long, under the skilful guidance of some up-to-date young man, to supply! Back to the cellular protoplasm! is the present cry, for there perhaps not only the mysteries of the outgrown "vital force" of our grandsires, but assuredly of many of the more practical puzzles of physiology and of her sister, pathology, lie concealed. Of these mysteries cancer may be one—and the solution easier than to-day it seems.

PUBLIC URINALS.

Some days ago a citizen, a lowly and doubtless very ill-bred and indelicate citizen, while in the act of urinating against the spokes of his truck wheels was taken *"in flagante delictu,"* toted to court and fined five dollars.

It is a common sight to see boys of not too tender years marching with broad and straddling gait down our busy streets and avenues casting from them, with rare satisfaction, that stream of urine which the resilient bladder of youth alone can throw. With the advent of age, however, there is a change. The lad may empty his bladder in public with impunity; the man's less elastic organ must dilate—or do the other thing. Does it not seem reasonable that many pathological lesions—hypertrophied prostate among them—may be traced to this lack of public urinals?

Some one has said that the male sex has no longer any rights or privileges. This seems to be a good example of that concept. As New York now stands it is either burst your bladder or go to a grog-shop, where courtesy as well as custom demands that you buy a drink in exchange for the privilege granted you—of leaving one!

Throughout Southern Europe and in most of the cities of Germany, there is a urinal to be found in every single block. It is quite true that in Naples, for example, they are, to one not familiar with the sight, disgustingly public, but it's a case of "*Honi soit.*" The publicity arose from the fact that in former generations there were no women of the upper classes on the streets; the urinals have not been made more private, because even to this day but few of the high-caste women course the streets save in carriages.

Our arrangement, based on the conception that the act of urinating is a criminal one—this basis being produced by the self-same forces which forbid the proper regulation of prostitution—seems vastly inferior. If, in this matter the men have no privileges, how is it with women? By just the number of barrooms to which men may retire are they worse off than the men. England suffers from the same false modesty, urinals being as infrequent there as here. It is an Anglo-Saxon trait.

President Cantor's office is said to be a veritable municipal beehive, so busy is he with his great corps of aids in executing many plans for public improvement. Is there any question more trenchant, more gravely needing his care and efforts?

SMALLPOX AND VACCINATION.

Experience is our most inexorable and most faithful teacher, and no more so in any other sphere of knowledge than in that of public health. It is now a well-established fact that the world, especially perhaps the more civilized nations, within the last two years have been undergoing the worst epidemic of smallpox known for at least a generation. Of all countries in Europe probably none has suffered as much as England, where the "conscientious scruple clause" of the vaccination law has been the cause of many people avoiding this precaution. While this is true in Great Britain, in Germany smallpox in its typical form is almost an unknown disease, probably for no other reason than that vaccination is obligatory and the law is vigorously and consistently enforced.

All statistics are somewhat misleading, because their bare figures cannot express all the factors in a case like this and because too often in tabulating the figures various essential elements are either altogether omitted or not given their due weight. There have recently appeared, however, tables rather more valuable than usual concerning this matter of smallpox and vaccination in England. It is well here that we look them over carefully in order to gain and remember the lesson they emphatically teach. (A. Gubb, La Sem. Méd., 1902, No. 6). Historically the laxity in the vaccination law began in England in 1895 when the question of the ultimate value of vaccination was up in all its phases before the public in virtue of a committee of Parliament appointed to look into the question and formulate new laws. The objections against a fixed obligatory law were so numerous and persistent that Parliament was finally persuaded to pass a clause in the law by which a person having "conscientious scruples" against vaccination might avoid it by conforming with certain regulations. England was preceded in these tactics by one of the states of the Swiss Confederation, namely the Canton of Berne,

which in 1895 passed a similar regulation. The difference between a small community like this canton and a large and densely-populated country like Great Britain is at once apparent, but at the time did not carry probably as much weight as such a fact should.

Whatever the results in Switzerland have been, these are the present statistics as far as Great Britain is concerned, beginning with 1842, comprising therefore sixty years of the century just ended. The relative proportion of children less than five years old, of subjects between five and twenty years old, and of adults after the twentieth year who died of smallpox in London from 1842 to 1900 is the following: Adults older than twenty years of age perished only ten in a hundred from 1842 to 1850, eighteen between 1851 and 1860, twenty-six in the next decade, thirty-eight in the following, forty-six between 1881 and 1890, and, finally, fifty-four from 1891 to 1900. Persons between their fifth and twentieth years showed a variable curve, which in 1842 began with eighteen per cent. and in the decade of 1881 to 1890 reached twenty-six per cent., after irregular oscillations and since then has fallen to fourteen per cent. In young children less than five years of age, the value of vaccination was shown by a descending curve from sixty-eight per cent. in 1842 regularly and steadily to twenty-four per cent. in 1881. Since the relaxation of the vaccination laws it has risen steadily until in 1900 it reached thirty per cent.

The importance of knowing how many young children at the present time escape vaccination in England is shown by the curve taken from the records beginning in 1872 and ending in 1898. From 1872 to 1882 the curve slowly and irregularly sinks from eight to six per cent. From 1882 to 1892 it rises steadily from six to eighteen per cent. and thereafter rapidly and without breaks to thirty-three per cent. in 1898. It is therefore apparent that probably at the present time, with the disease causing ravages among infants, fully one-third are to-day not vaccinated by law in England.

If now we contemplate the death-rate of all subjects irrespective of age during the epidemic of 1901 in London we find the following: The curve for the non-vaccinated, less than a year old, begins at eighty-eight per cent. and slowly sinks to thirty-two per cent. for patients between the tenth and the fifteenth year. It then rises irregularly and steadily until ninety-eight per cent. is reached for the age between thirty and thirty-five, when an irregular descent occurs until no deaths are reported between the fiftieth and eightieth years, while for the vaccinated no deaths whatever were reported for subjects between a few months and ten years old. At fifteen years the deaths were about one-half of one per cent. For the age limit of thirty to thirty-five the rate was sixteen per cent. The highest range of mortality for the unvaccinated is a little less than twenty-eight per cent., ranging from that down to twenty per cent. and covering the period of life between thirty-five and seventy years of age. Thereafter no deaths were reported.

It will be seen from this comparison that the death-rate in the non-vaccinated is many times greater than in the vaccinated for all periods of life up to the sixtieth year. Thereafter, so far as this special epidemic was concerned, by causes not shown in the statistics more deaths occur in the vaccinated than in the non-vaccinated subjects Specific reasons for this certainly can be found, because they must exist in order to explain a variation from the law which so patently governs this disease in all the earlier periods of life. Hardly any one would need any further argument to convince him of the absolute value of this form of prevention against disease. There are other facts equally as convincing; for example, the experience of the German and French armies during the Franco-Prussian war. In the German army vaccination was compulsory. There were in it no epidemics of smallpox and a smaller number of cases practically than there were deaths from the disease in the French army, which had severe epidemics and at that time did not make vaccination compulsory. It therefore suffered from ravages of the disease throughout the war. Perhaps the painful experience of Great Britain and other civilized countries which have suffered more or less during the last two years from smallpox will at least show that in vaccination we have a means of protection that cannot be disregarded except at severe penalty and cost.

HELMHOLTZ AND SCIENTIFIC OBSERVATION.

ONE of the most promising signs in the medical literature of the opening century is the increased attention paid to the history of medicine. The story of the work of great observers and discoverers is not only informing in itself, but it is a source of inspiration to workers in similar fields. A more careful knowledge of the past of medicine would rid us of many claimants for long

anticipated discoveries and make the body of our medical literature less of a huge mass of endless repetition, often of things said much better by the older medical men.

Knowledge of the individual lives of great investigators would undoubtedly disclose the opportunities that lie open to all medical men for original observation. Genius is infinite patience, according to one great thinker, and the faculty for taking unlimited pains according to another. It may be that neither of these definitions exhausts the connotation of the word genius; it would seems that there is always something more—the divine spark that illuminates what has been obscure before; but there is no doubt that patient investigation has been the basis of all great discoveries.

The *Journal of the American Medical Association* devotes most of its pages of original matter in the issue of March 1st to papers with regard to Helmholtz, the semicentennial of whose discovery of the ophthalmoscope was celebrated at the last meeting of the Association. The sketches of his life and work show how much can be accomplished by the faculty for continued patient work, though spread over many things.

When Helmholtz began his professorial career, it was as professor of anatomy, physiology and pathology, at the University of Königsberg. This triple occupation, now usually divided among at least five professors, did not destroy his initiative. He was not one to be bound down by mere routine work. His physiological teaching suggested investigations in the transmission of nerve impulses and he proceeded to make them. But this did not satisfy his inquiring mind. From physiology he passed naturally to speculations on nerve tissue in its relation to psychology and thence to psychological problems. At this same time he was occupying his leisure time by observing through a telescope from the window of his room the methods of walking of his Königsberg fellow-citizens, in order to be able to write on the principles of human locomotion, a subject that had been made popular by Weber not long before.

This set of simultaneous investigations, at a time when he was not yet thirty years of age, forms a keynote to Helmholtz's life and character. Anything that was of interest to him, he followed up. He had what every great medical discoverer, Laennec, Schwann, Claude Bernard, Ramon y Cajal, has had, a manual dexterity that enabled him to construct instruments needed in his experimentation, the models of which did not then exist. He was what we call a "handy man," besides being an inventive genius. When he needed an electrical apparatus for his work in experimental physiology he made discoveries while engaged on the construction of the machine. His investigation of the physiology of the eye and the ear led him to the formation of great principles in optics and acoustics hitherto unknown or but partially realized.

Helmholtz is the type of man that must ever stand as a model for the race in the matter of scientific advance. No obscure question balked him. The unknown had an attraction because it inspired research. Mysteries have their approachable points, and once on the track patient observation and logical methods will surely accomplish results.

The lives of such men as Helmholtz must be better known and appreciated if the new century is to see great advances in the medical sciences, for new problems have become more complex, the more obvious discoveries have been made. Every years shows, however, that there are still promising fields for investigation lying invitingly open and that the capacity for taking pains in observation will have its adequate reward.

ECHOES AND NEWS.

NEW YORK.

Dr. Taylor's Book Translated into Italian.—An Italian translation of Dr. Robert W. Taylor's work on Genito-Urinary and Venereal Diseases has just appeared in Torino from the Union Typographical office.

Bellevue Alumni Association.—*Whereas*, In the death of Dr. Henry R. Baldwin, our Alumni Society has lost one of its most eminent and respected members, whose noble attributes and high professional character had endeared him to all his friends and to the community in which he lived; be it

Resolved, That we express to his family our deep sorrow and heartfelt sympathy in their sad bereavement; and be it further

Resolved, That a copy of this part of our proceedings be sent to the medical journals for publication.

Committee. { J. W. S. Gouley, M.D.
J. F. Erdmann, M.D.,
Irving S. Haynes, M.D.

Death of Dr. Munde.—The Medical Association of the Greater City of New York desires to give expression to the loss it has sustained in the death of its associate, Dr. Paul F. Mundé, one of its founders and most distinguished members.

In his professional life and work he exhibited the attributes of the conscientious and conservative physician, and, throughout his whole career, in every position he occupied, he discharged its duties with fidelity and devotion, winning the respect and esteem of all who knew him.

Our deepest sympathy is extended to his afflicted

family, and we hereby resolve that this vote be entered in our minutes and a copy be sent to the family.

Committee. { W. H. Katzenbach, M.D., Henry C. Coe, M.D., Chas. F. Adams, M.D.

Stony Wolde Sanatorium.—Mrs. Leslie Carter will appear at an entertainment to be given at the Buckingham Hotel on Tuesday, March 18th, in aid of the Stony Wolde Sanatorium Association. The entertainment will also enlist the services of other artists, among them Kyrle Bellew, Miss Marguerite Hall, Miss Fielding-Roeselle, Mrs. Robert Macpherson, Miss Amy Baker, the Hauser Quartet, and Bruno Huhn. Tea will be served at the completion of the programme.

New York Academy of Medicine.—A stated meeting will be held Thursday evening, March 20th. The following symposium on Operations for the Relief of Paralytic Deformities, with Special Reference to Tendon Transplantation, has been arranged. The papers will be as follows: Introduction; History; Indications for Operation, by Royal Whitman; Deformities due to Muscular Paralysis; Method of Production; Possibilities in Tendon-Transplantation; Combinations That Have Been Made to Correct Deformity, by Wisner R. Townsend; Technic of Operation; Results of Tendon Transplantation at the Hospital for Ruptured and Crippled, by Virgil P. Gibney; Neurological Questions Involved in Tendon Transplantation, by Joseph Collins.

Section on Ophthalmology.—Monday evening, March 17th: (I.) Presentation and Reports of Cases: (*a*) Case of a Free Cyst in the Anterior Chamber, by R. Denig. (*b*) Brief Report of an Epithelioma of the Eye-lid which disappeared entirely under the use of a solution of adrenalin chloride, by Wilbur B. Marple. (II.) Paper on Preventive and Hygienic Treatment of Myopia, by Alexander Duane. (III.) Paper: The Correction of Myopia by Glasses, by Walter E. Lambert. (IV.) Paper on Operative Treatment of High Myopia, by Peter A. Callan. (V.) Discussion by Drs. Bull, Gruening, Weeks and others.

Section on General Medicine.—Tuesday evening, March 18th: Symposium on Acute Articular Rheumatism. (I.) Paper on Remarks on the Pathogenesis, by Heinrich Stern. (II.) Paper on The Symptomatology and Diagnosis, by Leonard Weber. (III.) Paper on The Complications and Sequellæ, by Frank W. Jackson. (IV.) Paper on The Prognosis and Treatment, by W. H. Thomson. (V.) Discussion by Drs. Morris Manges, Edward G. Janeway, J. W. Brannan, S. Baruch, Abraham Mayer, Andrew H. Smith, Louis Fischer, R. Van Santvoord and others.

Section on Genito-Urinary Surgery.—Wednesday evening, March 19th: (I.) Presentation of Cases: A case of possible infection of syphilis from an instrument, in the person of a physician, by Frederick Griffith. (II.) Presentation of Specimens, Mulberry Vesical Calculus, by John Van der Poel. (III.) Presentation of Instruments: (*a*) Prostatic Douche Tube, by Ramon Guiteras; (*b*) Prostatic Cooler (Psychrophor), by John Van der Poel. (IV.) Paper on The Diagnosis of Renal Calculus, by Alexander B. Johnson.

Rochester Academy of Medicine.—The following program has been announced: Section III.—Obstetrics, Gynecology, and Pediatrics, Wednesday evening, March 19th. Paper: Hysteria and Insanity at the Change of Life, by Eugene H. Howard. Discussion on Hysteria opened by Edward B. Angell. Discussion on Insanity opened by Robert G. Cook.

Section IV.—Public Health, Including Hygiene, Climatology, Physiology, Pathology, Bacteriology, and Forensic Medicine, Wednesday evening, March 26th. Paper: The Prevention and Home Climatology of Pulmonary Tuberculosis, by William S. Ely. Discussion: The Bacteriology of Tuberculosis, by Charles W. Dodge; The Prevention of Tuberculosis by Early Diagnosis, by William L. Conklin; The Throat and Nose as Avenues of Infection, by John O. Roe; Infection through Cattle and Milk, by S. Case Jones; The Relation of Joint Tuberculosis to Pulmonary Tuberculosis, by Lewis W. Rose; The Pathology of Lympathic Tuberculosis, by Edward W. Mulligan; Why, if Ever, Do Skin Tuberculoses Remain Localized? by Dr. E. Wood Ruggles; The Influence of Tuberculous Patients on other Patients in a General Hospital, by Charles D. Young.

Presbyterian Hospital Loses.—Mrs. Annie Botsford, who sued the Presbyterian Hospital to recover $25,000 for having made, without her consent, an autopsy on the body of her husband, Albert Kent Botsford, recovered a verdict of $500 from a jury before Justice Gildersleeve in the Supreme Court yesterday.

Expert Medical Testimony.—Expert medical testimony was the topic of discussion at the one hundred and sixty-fifth regular meeting of the Society of Medical Jurisprudence, held last week in the Academy of Medicine. Dr. Graeme M. Hammond presented the paper of the evening. He deprecated the disrepute into which he said medical expert testimony had fallen and placed the blame both on the attorney and the physician. He disapproved of physicians acting, in litigations, in the dual rôle of medical counsel and expert witness, and said:

"In trials as they are conducted at present there is no possible chance for an agreement of experts. The witnesses for the two sides are not asked to give opinions based upon the same assumptions; each counsel has his own hypothetical questions, which differ from his opponent's as the night from the day. They are based upon absolutely different assumptions of facts, and the answers given are in accord with the assumptions in each question. Should the opposing counsel exchange hypothetical questions, the answer of every expert witness would be changed also.

"The expert opinions are of no value at all unless the assumptions contained in the hypothetical questions are proved to be true. If the jury believes the assumption in one hypothetical question the expert opinion based thereon is worthy of consideration; otherwise not. If these points were understood generally it would be seen that the seeming clashing of expert opinions is in reality nothing of the sort, but that the opinions given are merely what they claim to be, honest answers to absolutely different questions."

Dr. Hammond proposed as a remedy the selection of experts by each side, in litigations, who would examine the plaintiff or defendant in each other's presence and in the presence of a stenographer, who should note all that was said and done in the examination. This, he said, would do much to secure unanimity of expert opinion.

"When everything has been said, however," he continued, "it must be admitted that expert medical testimony, which should be a valued scientific and honored method of assisting justice to know the truth, has been prostituted by those attorneys who are willing to use any means to secure a verdict or save a client, and by those physicians who are willing to lend themselves for such a purpose. It is the medical expert himself who is to blame. When he recognizes the fact the remedy will quickly follow. The medical profession is respected everywhere but in the courts; let it be seen to that it is respected there."

State Lunacy Bill.—The Medical Association of the Greater City of New York at its meeting last week at the Academy of Medicine adopted unanimously and

without debate the following, addressed to Governor Odell: *Whereas,* Lunacy Bill No. 368, recently passed by the Legislature, has abolished the positions of the two Medical Superintendents at Ward's Island, New York, and has placed the two offices under one head, thus putting over 4,000 insane patients under one management; and

Whereas, A supplemental bill amending Bill No. 368 is now before the Legislature restoring these positions so that the division of the hospitals, as they formerly existed, one for men and one for women, may be maintained; therefore, be it

Resolved, That the Medical Association of the Greater City of New York heartily indorses this amendment and advocates its immediate passage.

For Compulsory Vaccination.—A bill amending the Public Health law was introduced in the Assembly March 6th by Assemblyman Fuller. It gives local boards of health the power to enforce general vaccination when required to do so by the State Commissioner of Health, who is authorized to make such a requirement for the protection of the public health.

PHILADELPHIA.

Decrease in Smallpox Cases.—During the week ending March 8th but 47 cases of smallpox were reported, this being the smallest number for any week since early last fall. The $225,000 appropriated for expenses attending the suppression of smallpox is now available and being disbursed. Of this amount $82,000 will be required to compensate the vaccine physicians employed by the city.

Post-Graduate Work at University.—The announcement has been made that the University of Pennsylvania will establish a spring school of medicine for practitioners. This movement has been contemplated for some time and will include courses of instruction in nearly all the departments of medicine. The regular faculty will have a prominent part in the teaching.

Women to Fight Expectoration Nuisance.—William H. Sims, station-master of the Broad Street Station, delivered an address on "Expectoration in Public Places and the Best Methods of Preventing It," at a meeting of the Woman's Sanitary League on March 3d. He discussed the subject mainly from the point of view of a railroad man, but said that the remedy was a law inflicting a penalty for expectoration in public places. Discussion resulted in the conclusion that State aid should be sought to remedy the evil and a committee was appointed for this purpose.

Surgeons for the Guard.—The following appointments in the Medical Department of the National Guard of Pennsylvania are announced: Alfred G. Wood, of Philadelphia, surgeon, assigned to Third Regiment; John C. Hirst, of Philadelphia, assistant surgeon, Third Regiment; John L. Brubaker, assistant surgeon, Sheridan Troop; Edwin A. Nicodemus, assistant surgeon, Governor's Troop.

Address on Immunity and Serumtherapy by Dr. Welch.—Dr. William H. Welch, of Johns Hopkins, addressed the students of the Jefferson Medical College March 7th, as the guest of the J. C. Wilson Medical Society. Dr. Welch, after explaining the theory of immunity, gave his personal opinion of the value of various serums and antitoxins. He stated that many failures in this line were due to the attempts to introduce methods of inducing immunity which were not based on successful experimental investigations. Various diseases were then mentioned, with comments on the status of attempts to secure immunity to each. Immunity to hydrophobia can be secured and this has proven of great value. Dr. Welch said that hydrophobia was not an extraordinarily uncommon disease and that when a case was diagnosed as such by a reputable physician it should be regarded as correct. The disease can be diagnosed with as much certainty and precision as can typhoid fever. The statistics of the Pasteur treatment were given to show its great value. This is in no sense a treatment after symptoms have begun, but is an active immunization, a sufficient time intervening between the inoculation and the disease to allow of this. The method is an effective preventive treatment. Immunization against cholera is not yet on a good experimental basis. Regarding typhoid fever a definite opinion cannot now be given as to the efficacy of attempts at immunization. The fact that some cases which are clinically typhoid fever show the paracolon bacillus instead of the bacillus typhosus complicates matters. The point was made that when the Widal reaction is negative the paracolon bacillus should be sought for. Against the plague there is a method of acquiring a quite substantial active immunity. Dr. Welch said he should submit to the Haffkine treatment were he going to an exposed place. Regarding serumtherapy two divisions were made—antitoxins and bactericidal serums. Of the former, three are on a sound experimental or practical basis, viz., diphtheria and tetanus antitoxins and antivenene. The efficacy of diphtheria antitoxin is so well established that statistics need no longer be read. The use of tetanus antitoxin is disappointing, because the symptoms appear so late that the antitoxin cannot be injected in time to be effective. It may be of some value in subacute or chronic cases. It has some prophylactic use and this should be employed more frequently in human beings who are exposed to garden soil, stable refuse, etc. Antivenene is now on a sound experimental basis. Of the bactericidal serums none are at present of great practical value, antiplague serum showing the most promise. Too many conditions must be favorable for their action—the presence of their complement, the power of destroying bacteria after uniting with the complement, etc. Antitoxins are of proven value. The bactericidal serums are yet in an experimental stage, but their further development is of very great importance.

A New Trephine.—At the Academy of Surgery, March 3d, Dr. J. Chalmers DaCosta exhibited a new instrument for trephining the skull, its use being demonstrated by the inventor, Dr. J. C. Stellwagen, a dentist and junior medical student. The instrument, although not yet perfected, is a very ingenious one, being especially adapted to cut osteoplastic flaps. It consists of a handle and shaft like an ordinary trephine, but carrying an extensible arm at right angles. This carries at its outer end a detachable knife or saw for cutting scalp or bone. The shaft has a center pin or can be rotated on a metal plate having a depressed center, it being fastened to the skull by points on one side long enough to be driven through the scalp into the bone. The instrument has given great satisfaction in the case of a child upon whom it was used.

CHICAGO.

Home for Journal of the American Medical Association.—F. W. Zander & Company have sold for John C. Nyman to Dr. E. Fletcher Ingals, a trustee representing the American Medical Association, the premises on the Northeast corner of Dearborn Avenue and Indiana Street for $42,500 cash. The present improvements consist of five two-story-and-basement brick dwellings. It is the intention of the purchaser for the present to remodel two of the houses and use the premises for the offices and publishing rooms of the *Journal of the American Medical Association.* It is said that the price paid represents a value of $425.00 a

front foot in Dearborn Avenue and $531.25 a front foot in Indiana Street.

Appointment of a Skiagrapher for Cook County Hospital.—The County Board has elected Dr. Harry J. Haiselden attending skiagrapher to the County Hospital. Dr. Haiselden will have charge of the X-ray apparatus recently installed there.

Public Health Matters.—Twenty per cent. more deaths were recorded by the Bureau of Vital Statistics of the Health Department for the week ending March 1st than for the week previous, and 46 per cent. more than for the corresponding week of 1901. The exact figures are 434 one year ago, 529 the week before last, and 634 last week. The annual rates per one thousand of population are 12.87, 15.14 and 18.15, respectively, this latter figure being unpleasantly near the average New York mortality-rate. For this city it is the highest on record for the season of the year. The causes of death showing the greatest mortality as compared with the previous week are, with the exception of pneumonia, the chronic diseases, and the result is seen in a 20 per cent. rise in the deaths of the aged, those over sixty years. Nervous diseases show 72 per cent. increase; consumption, 46 per cent.; pneumonia, nearly 35 per cent.; Bright's disease, nearly 32 per cent., and diseases of the heart, 30 per cent. There were 16 suicides and 36 other violent deaths, an increase of 53 per cent. over the number in the corresponding week one year ago and of 85 per cent. over that of the previous week.

An Analysis of Three Hundred and Twenty-Eight Operations upon the Gall-Bladder and Bile-Passages, with Observations upon the Same.—Dr. Wm. J. Mayo of Rochester, Minnesota, read a paper with this title, by invitation, before a recent joint meeting of the Chicago Medical and the Chicago Surgical Societies. A study of these cases brings out some general features of interest. Three hundred and eleven of the number were of benign origin, and the number of deaths was eight, giving a mortality of about 2½ per cent. Seventeen were for malignant disease, with three deaths, a mortality of 18 per cent. In 214 cases the stones were located in the gall-bladder or cystic duct or both, with two deaths. In about 10 per cent. of these cases there was obstruction of the cystic duct by a stone or stones were contained in the cystic duct. The after-history of many of these cases in which the cystic duct was involved and simple cholecystostomy performed was not wholly favorable, and for cases in which this duct has been obstructed or in which stones have been lodged in the duct for a length of time cholecystostomy is insufficient, and the gall-bladder should be extirpated at the primary operation if the patient be otherwise in good condition.

Stones in the Cystic Duct.—Stones in the cystic duct are often more easy to remove with the gall-bladder than without it. If the peritoneum binding it to the liver be divided on each side, the connective tissue between can be easily separated with the finger, and by using the gall-bladder as a tractor, and, if necessary, dividing the peritoneal and muscular coats just above the cystic duct, the mucous tube of the latter will strip out readily, bringing the stone with it. The mucous coat about the neck of the gall-bladder is thick and separates easily from the outer coats, while the fixation by adhesions is to the outer coats alone. At the fundus, the mucous membrane is less easy to separate, and a combination of amputation of the fundus with removal of the mucous coat from the lower portion of the gall-bladder and cystic duct, makes cholecystectomy a safe operation.

Cholecystitis.—In this group there were 34 cases, with five deaths. This mortality calls attention at once to the serious nature of the infections. All the cases in which an acute suppurative condition existed at the time of the operation, with or without stones, and all cases in which the gall-bladder was thickened and contained more or less ropy mucus and bile or sand-like sediment, without stones, were classified at the time of operation as cholecystitis. The essayist has long held the view that the dependent fundus was a mechanical factor which rendered the possibility of stone formation in cases in which the stagnation of the bile, infection of the gall-bladder and obstruction of the cystic duct were the other factors; that is to say, if the cystic duct were at the bottom, sediment would pass out first. For this reason, it seems that cholecystitis might be more liable to exist without stones in the more perfectly drained cases in which the fundus was above the level of the cystic duct. In two cases, acute suppurative cholecystitis followed typhoid fever. At the time of operation the typhoid bacillus was found in pure culture, and the patient's blood gave the Widal reaction. In both cases stones were present in the gall-bladder, but on going into the history, it could be shown almost beyond a doubt that the gall-stones existed before the advent of the typhoid, and merely determined a lowered resistance.

Stones in Common Duct.—In thirty-one cases stones were found in the common duct, with one death. In only one case was it possible to remove the stones through the cystic duct by dilating it. In 29 cases, the duct was incised and the stones removed. In five cases this was accomplished by separating the gall-bladder from the liver, and incising the free surface down to and along the cystic duct, to the common duct, and the latter was incised at the juncture. In a number of these cases the head of the pancreas was enlarged, and in six cases more or less pancreatic secretion came out with the bile.

Jaundice.—Jaundice in connection with stones in the common duct was a most variable feature. In many cases it was so slight as not to attract especial attention, and the finding of stones in the common duct was a surprise. In the majority the jaundice was marked. One patient with extreme jaundice from a stone impacted in the cystic duct at its juncture with the common duct and three with jaundice from malignant disease, died from post-operative capillary oozing. In all of these cases there were subcutaneous ecchymotic spots, looking like purpura hemorrhagica before operation. Every patient who had jaundice with this condition died in this way. No patient in whom this was not present died from this cause, although several were in extreme jeopardy.

Cholecystenterostomy.—This operation was performed three times for chronic pancreatitis and three times for malignant disease. The anastomosis was made to the duodenum twice and to the transverse colon four times. So far as he could judge, the anastomosis to the colon answered every purpose. The Murphy button was used in making the anastomosis.

Exploration.—In twelve cases negative exploration was made. This, however, includes only the cases in which the abdominal wall was incised independently for this purpose, and does not fairly represent the mistakes in diagnosis. In some of the earlier cases a small gall-bladder, with thickened walls, extensively adherent, was found, and he contented himself with loosening the adhesions. In reoperating upon one case, a ball-valve stone of small size was found in the common duct, yet so little jaundice was present as to seemingly preclude the possibility of its presence in this locality. In two cases seen since he had found a rolling stone in the common duct under precisely similar circumstances. Adhesions about a small gall-bladder should lead to a

careful exploration of the common duct before deciding that the adhesions alone are the cause of the symptoms.

CANADA.

Smallpox Coming from Quebec to Ontario.—The Ontario Provincial Health Office has received word that several men infected with smallpox have recently crossed the Ottawa River into Ontario. The men come from lumber camps and immediate steps have been taken to stop this. The Quebec Board of Health has divided that Province into ten districts with an inspector for each. The continued spread of the disease has compelled the Government to action.

Protestant General Hospital Report, Ottawa.—The fifty-first annual report of this institution has been issued. The most important event in connection with the hospital during the past hospital year has been the amalgamation with the Lady Stanley Institute. The number of patients under treatment last year was 1,400 as against 1,324 for the previous year. Of these 702 were pay patients. In the out-door departments 2,163 patients received treatment. Of these about 700 were Protestants. The fees for private patients will be raised and an effort will be made to secure a larger *per diem* allowance from the city and surrounding municipalities.

New Toronto Medical Building.—Satisfactory arrangements have at last been made with the Ontario Government with regard to the erection of the new medical building of the Medical Faculty of Toronto University. The Senate of the University will be empowered by the Government to set aside the necessary $125,000 for the construction of same. This will be on the plan of the new buildings for Harvard University. The Laboratories will be constructed on the "unit system," each one being normally 23 by 30 feet and capable of being enlarged or decreased in size for large or small classes. The new building will be located in the Queen's Park contiguous to the other buildings of the University.

Getting Matriculation by Act of Parliament.—Some Quebec students apparently think there are easier ways of securing matriculation in medicine than by the ordinary course of examinations. A bill is before or rather has been before the Quebec Legislature during the present session to permit medical students who commenced study prior to 1899 to dispense with the matriculation examination. A similar measure of relief was granted several students in 1898 who had commenced their studies prior to 1896. As the Hon. Mr. Flynn, the leader of the Opposition, put it, if this sort of thing is to continue in that Province, the qualification of a classical education for the professions had better be abolished. On the motion of the Hon. Dr. Guerin the measure received the six months' hoist by a vote of forty-five to fifteen.

New Civic Hospital for Montreal.—The question of a new civic hospital is to be discussed again by the City Council of Montreal which has long required such an institution, but never more than it did at the present time since the old hospital has been in occupation for the past year with smallpox patients. The trouble all along has been friction between the Catholic and Protestant element, the former desiring that there be two hospitals, one for the Catholics and one for the Protestants. Archbishop Bruchesi has appealed to the City Council for a separate Roman Catholic Hospital, as His Grace puts it, in the cause of peace and liberty.

Toronto Orthopedic Hospital.—The Trustees of this institution are appealing to the Canadian public for donations for their new building. It is the only hospital of its kind in all Canada which exists exclusively for the benefit of the lame, crippled and deformed. Although opened only four years ago, it has progressed far beyond the most sanguine expectations of its promoters. Twenty thousand dollars is still required to complete the alterations and additions to the new property.

Congress of French Physicians of America.—A few days ago a large gathering of French-Canadian physicians of the Province of Quebec was held at Laval University, Montreal, at which meeting it was unanimously decided to hold a congress of the French doctors of America on the occasion of the jubilee celebration of Laval University, Quebec, in June next. Dr. Brochu, Professor of the Medical Faculty of Laval, Quebec, was elected president; Dr. E. P. Lachapelle, Vice-President for Montreal and the Province of Quebec; Dr. C. Prevost, Ottawa, for the Province of Ontario, and Dr. Archambault of Cohoes, New York, for the United States. Two general secretaries were also elected, Dr. A. Simard of Quebec and Dr. le Sage of Montreal. It was also decided to ask the following to become honorary presidents to represent the universities in the Province: Dr. Craik of McGill, Dr. F. W. Campbell of Bishop's, Dr. Rottot of Laval, Montreal, and Dr. Simard of Laval, Quebec. A general committee was appointed to make all arrangements and to fix the number of days the congress would last.

Curtailing the Powers of the Quebec Board of Health.—A bill has been introduced into the Quebec Legislature by one of the members of that body seeking to amend the health laws of the Province. The member in question believes that the powers of the Board of Health are too arbitrarily exercised, especially as regards vaccination, and therefore he desires the municipal councils to have control of health affairs. Although at the present time all the civilized countries of the world are taking active measures in the suppression of smallpox, here is a legislator, in whose Province the disease has been rampant, who wishes to relax the stringency of the laws and thus permit a greater spread of the disease. The bill has been referred to the Committee on Legislation.

Toronto Clinical Society.—On the evening of March 5th the Toronto Clinical Society held its regular monthly meeting. Dr. Herbert A. Bruce reported the first case of recovery following operation for perforation in typhoid fever which has occurred in Canada. The patient, who was formerly a house surgeon in one of the Toronto hospitals, but who had commenced the practice of his profession in a small town in the western portion of the Province of Ontario, contracted typhoid fever last summer while in attendance on two or three cases in his own practice. He was attended by a fellow practitioner from a neighboring town. The case went on in the usual way until the third week, when in the middle of the night he was seized with very severe pains in the right iliac region. His medical adviser was summoned, but, as he was away in the country in attendance upon another patient, a confrère in the town was called in his place. An injection of morphine was administered which quieted the pains, and when the regular attendant arrived the following morning the patient was resting comfortably. He, however, considered that perforation of the bowel had occurred in the night and held to this diagnosis against the patient himself and three other practitioners who were summoned in consultation. Dr. Bruce of Toronto was summoned, who confirmed the diagnosis of perforation, and an immediate operation advised. This was done eighteen hours after the time of the supposed perforation. A small opening about the size of the lead in a lead pencil was found in the ileum, about eighteen inches from the ileocecal valve, and was closed in the usual way. From this the patient made a good recovery, but other trouble ensued and Dr. Bruce was

again summoned to the bedside of the patient. A subphrenic abscess had formed above the liver. This was evacuated and about two and a half quarts of pus withdrawn. After this operation the patient very nearly collapsed, but finally rallied. The patient and his medical attendant were present at the meeting when Dr. Bruce reported the case. He expressed his gratification to both gentlemen for his life which he stated he undoubtedly owed to them, especially so to his medical attendant who had made the diagnosis of perforation.

Obituary.—Dr. George W. Jackes of Eglinton, North Toronto, died suddenly on the morning of March 7th of apoplexy. He was in his fifty-first year. He had practised in Eglinton for over twenty-five years. Dr. James McLaren of the same place, also died on March 7th. He was born in 1824 and received his degree in Arts at Queen's University, Kingston, about 1850. He studied medicine in the old Toronto School of Medicine under Dr. Rolph, graduating M.B. about 1853.

GENERAL.

"Georgia Journal of Medicine and Surgery."—Dr. W. E. Fitch, founder and for many years editor and business manager of the *Georgia Journal of Medicine and Surgery*, published at Savannah, Ga., has sold his interest in the publication to his former associate and co-editor, Dr. St. J. B. Graham, who becomes editor and sole proprietor. The *Journal* under Dr. Fitch's editorial management, from the appearance of the first issue, merited the support of the profession, and gradually, year after year, made for itself a place among the best medical periodicals of this country. Dr. Fitch will devote his entire attention to the practice of his profession in Savannah, Ga.

Autopsy of Doodica.—Examination of the body of Doodica, one of the Hindoo sisters separated by operation, showed the presence of a large abscess in the lower part of the abdomen with perforation of the cecum and appendix; there was also a general tuberculous peritonitis, but no appearance of trouble at the site of operation and no trace of hemorrhage. The heart was well to the left in the normal position and there was no trace of pericarditis, pleurisy, pulmonary tuberculosis or brain disease. Death was due to tuberculous peritonitis and to the tuberculous perforation of the cecum and appendix causing blood-poisoning.

An Institute for Phototherapy.—The Queen Regent of Spain has given 10,000 pesetas for the foundation of an institute for phototherapy at Madrid.

Gregory Testimonial Banquet.—Arrangements are being rapidly completed for the Gregory Banquet to be held in St. Louis on April 17th. Hon. A. M. Dockery, Governor of Missouri, himself a physician and a former student of Dr. Gregory, will preside. Every indication points to a large attendance.

St. Louis Medical Society of Missouri.—At the last regular meeting held Saturday, March 8th, Dr. L. T. Pim read a paper on Exstrophy of the Bladder; Operation; Union by First Intention, and Dr. Sidney I. Schwab read a paper on Work as a Therapeutic Agent in Hysteria and Neurasthenia.

Second Brussels Congress for Prophylaxis of Venereal Diseases.—This Congress is to meet September 1-6, 1902, and the following subjects are suggested for discussion:

Public Prophylaxis.—Whereas, on the one hand, it is the duty of the public authorities to safeguard society against contagious diseases, which, by their frequency and by the facility with which they are spread, constitute a public danger, and while, on the other hand, quite apart from the sanitary point of view, it is their mission to protect minors abandoned by their parents. What measures of public prophylaxis, under the form of legal provisions, should be taken against venereal diseases, specially with reference to the following points? Relative to prostitution: (1.) The prostitution of minors; (2.) the actions of public bodies whether in the interest of public morality and tranquillity, or from a sanitary point of view; (3.) procurers and bullies. Not associated with prostitution: (1.) The protection of minors of both sexes; (2.) the organization of measures of relief for those suffering from venereal diseases; the duties of charitable institutions to those so suffering; (3.) suckling by wet nuses; contagion by midwives and nurses; arm-to-arm vaccination; contagion in factories and workshops by means of instruments of labor; registry offices, etc. Is it necessary to apply the principles of civil and penal responsibility for the transmission of venereal diseases?

Individual Prophylaxis.—Taking into consideration that if the public authorities have to take prophylactic measures against venereal diseases, the duty of self-preservation is incumbent on every one; on the healthy, by the avoidance of all dangerous contact with an infected subject, and on the diseased by avoiding the possibility of infecting others. (1) What are the best means of enlightening the youth and the general public on the social and individual dangers of syphilis and gonorrhea, as well as the methods of contagion of these two diseases, direct or indirect? (2.) How can one best facilitate individual prophylaxis by means of charitable institutions (dispensaries, refuges, etc.) and the medical treatment of patients of both sexes suffering from syphilis or gonorrhea?

Statistics.—What should be the uniform basis on which the statistics of venereal diseases in all countries should be formulated?

American Association of Urologists.—This Association was organized on February 22, 1902, essentially for the purpose of the further development of the study of the urinary organs and their diseases. Although most of the founders of the Association are specialists in genito-urinary diseases, membership is not limited to those engaged exclusively in this specialty. Thus, gynecologists who embrace renal and vesical surgery in their work are among the founders, as there are several who devote themselves to the microscopy and chemistry of the urine, as well as a number of practitioners interested in the study of the kidney from a medical standpoint. The Association consists of active, corresponding and honorary members, and is in great measure modeled upon the plan of the Société Française d'Urologie, modified to suit American circumstances and conditions. Thus, whenever possible, the branch associations, throughout the United States, British Possessions and Spanish America will hold their meetings on the same evenings as does the parent association in New York (the first Wednesday in each month). The work of the Association is principally clinical, for the demonstration of new methods of the technic of examination and treatment. The annual meeting of the American Association of Urologists will be held on the last day and the day following the annual meeting of the American Medical Association. The officers of the Association are: Ramón Guiteras, M.D., President; Wm. K. Otis, M.D., Vice-President; John Van der Poel, M.D., Treasurer; Ferd. C. Valentine, M.D., Secretary; A. D. Mabie, M.D., Asistant Secretary.

Association of American Physicians.—The Preliminary program of the Seventeenth Annual Meeting of the Association of American Physicians, to be held in Washington, D. C., on April 29th and 30th and May 1, 1902, includes the following papers: President's Address, by James C. Wilson, Philadelphia; Pneumococ-

cus Arthritis, by James B. Herrick of Chicago; A Case of Osteitis Deformans, by R. H. Fitz of Boston; A Case of Osteitis Deformans and one of Hyperostosis Cranii, by Morton Prince of Boston; Report of Cases of Bronchiectasis Following Influenza-Pneumonia, by W. W. Johnston, Washington; Pulsations in the Chest, by Arthur R. Edwards of Chicago; Spontaneous Non-tuberculous Pneumothorax, by M. Howard Fussell of Philadelphia: The Prognosis of Pleurisy with Effusion, by Richard C. Cabot of Boston; Healed Ulcerative Endocarditis, by James B. Herrick of Chicago; Tuberculous Pericarditis with Remarks upon Paracentesis and Incision, by Beverley Robinson of New York; the Condition of the Heart in Pregnancy, by Alfred Stengel and W. B. Stanton of Philadelphia; A Report of Cases of Thermic Fever Treated at the Pennsylvania Hospital in the Summer of 1901, by M. J. Lewis and F. A. Packard of Philadelphia; Results of Trauma of the Pancreas, Charles G. Stockton of Buffalo; Clinical Manifestations of the Early Stage of Cirrhosis of the Liver, by Frank Billings of Chicago; Drainage in Chronic Intestinal Catarrh: Its Importance and Technic, by Norman Bridge of Los Angeles; Intestinal Hemorrhage: Its Relation to Duodenal Ulcer, by Henry Jackson of Boston; A Clinical and Experimental Investigation of the Value of Gelatin as a Hemostatic, Alfred Stengel and D. L. Edsall of Philadelphia; Prognosis and Treatment of Tuberculous Peritonitis Based on the Massachusetts General Hospital Experience for the Past Ten Years, by Frederick C. Shattuck of Boston; Angiomyositis, by W. S. Thayer of Baltimore; Splenic Anemia and Its Varieties, by William Osler of Baltimore; Report of a Case of Lymphatic Leucemia, by D. D. Stewart of Philadelphia; Mitosis in Circulating Blood, by George Dock of Ann Arbor; The Pathology of Pernicious Anemia with special reference to the Changes in the Hemolymph Glands, by Eldred Scott Warthin of Ann Arbor; Pathology of Adrenalin Diabetes, by C. A. Herter of New York; A Case of Cystic Degeneration of the Kidneys, by I. N. Danforth of Chicago; A Study of Bacterial Cells, by Victor C. Vaughan of Ann Arbor; The Surface Action of Metals on Bacteria, Toxins and Enzymes, by F. E. Novy of Ann Arbor; Report of the Presence of Anguillula Aceti in the Urine of Two Patients Mistaken for Strongyloides Intestinalis, with Lantern Slide Demonstration, by Frank Billings and Joseph L. Miller, Chicago; A Case of Hematoporphyrinuria, by James Tyson and Alfred C. Crofton of Philadelphia; Histological Alterations of Cytotoxinic Intoxication, by Simon Flexner of Philadelphia; An Estimate of the Amount of Toxin in the Blood of a Horse Infected with Tetanus, by B. Meade Bolton and Carl Fisch of St. Louis; and Comparative Toxicity of Ammonium Compounds, by B. K. Rachford and W. H. Crane of Cincinnati.

Medical Clerk and Translator.—The United States Civil Service Commission announces that on April 22, 1902, an examination will be held for the position of medical clerk and translator in the Bureau of Animal Industry, Department of Agriculture.

The examination will consist of the subjects mentioned below, which will be weighted as follows: (1.) Translation of medical German, 25. (2.) Translation of medical French, 25. (3.) Translation of medical Italian, 10, (4.) Translation of medical Spanish, 10, (5.) Technical bibliographic work in medicine and zoology, 10. (6.) Medical and zoological terminology and nomenclature, 10. (7.) Experience, 10. Age limit, twenty years or over. From the eligibles resulting from this examination it is expected that certification will be made to the position of medical clerk and translator in the Bureau of Animal Industry, Department of Agriculture, at a salary of $720 per annum, and to other similar vacancies as they may occur. This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules. Persons who desire to compete should at once apply to either the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of examiners at the places mentioned in the accompanying list, for application Forms 304 and 375, which should be properly executed and filed with the Commission at Washington. The regulation requiring that applications be filed at least ten days prior to the date of the examination will be waived in accepting applications for this examination.

St. Joseph's Sanitarium.—Plans for an extensive addition to St. Joseph's Sanatorium, at Silver City, New Mexico, are completed, and the work will be begun shortly. This institution, which was initiated only last fall, has outgrown its present quarters and the new building is a necessity. The completed plant will form four sides of a square or court; that is, old California Mission style. The building will be but one room thick and one story high, with porches outside and inside, upon which the rooms will open by means of French windows. The kitchen, dining-room and research laboratory will be in separate buildings. A complete hydrotherapeutic apparatus will be installed. The management of the institution is entirely under the control of the Advisory Board. The immediate care of patients is entrusted to Dr. W. T. Williams and Dr. E. S. Bullock is the pathologist and diagnostician. The plan of treatment pursued is the careful application of the Brehmer principles in an ideal climatic environment.

Obituary.—Dr. Charles O. Carpenter, aged sixty-three, and one of the best-known physicians and surgeons of Massachusetts, died last week of pneumonia at his home in Holyoke.

Prof. Moriz Kaposi of the University of Vienna, the celebrated dermatologist, died March 6th. He was born at Kaposvar, in Hungary, on October 23, 1837. In 1879 he succeeded Prof. Hebra at the University of Vienna. His principal work, on the pathology and therapy of skin diseases, has been translated into several languages.

Dr. W. Fontaine Lippitt, a distinguished citizen and physician of Charlestown, Jefferson County, W. Va., died March 11th in his seventy-first year, at his home in that city. Dr. Lippitt was a son of the late Rev. Dr. Lippitt, who was for many years an eminent clergyman in the Protestant Episcopal Church, occupying a position as professor in the Virginia Theological Seminary, near Alexandria, and was closely related by marriage with the descendants of George Washington. Dr. Lippitt's widow and eight children survive him.

OBITUARY.

CHRISTIAN FENGER, M.D.

This famous surgeon died in Chicago Friday evening, March 7th, of pneumonia, after a week's illness. He was attended by Drs. Henry B. Favill, Frank Billings, and J. B. Herrick. Dr. Fenger's name and fame are known wherever modern surgery is practised. He had gained an international reputation in his profession and was classed as one of the foremost surgeons of his time. His advent in Chicago, a quarter of a century

ago, meant much to the progress of modern medicine and surgery in the West. He was a profound teacher of medicine and surgery based on sound pathology. During the last thirty years he contributed more than eighty articles to medical literature, and all of his writings breathe the same spirit of critical inquiry and originality of thought. They have all found a permanent place in medical literature. He was a member of the leading medical societies in this country as well as in Europe, and had served as surgeon on the hospital staffs of Cook County, Presbyterian, Tabitha Norwegian, Passavant Memorial, Lutheran, German and German-American Hospitals.

Dr. Fenger was born in Copenhagen, Denmark, November 3, 1840. While still a medical student, in 1864, he served as surgeon in the war between Denmark and Germany. He was graduated from the University of Copenhagen in 1867, and for two years was assistant in Wilhelm Mayer's Ear Clinic in Copenhagen. At the outbreak of the Franco-German war he became surgeon in the Red Cross Ambulance Corps, serving in this capacity throughout the war. From 1871 to 1874 he

CHRISTIAN FENGER, M.D.

was prosector and during 1873 and 1874 privat-docent at the Copenhagen City Hospital. A year later he was a member of the Sanitary Council and surgeon to the Khalifah of the district of Cairo.

Zeal for thorough scientific education led Dr. Fenger to encourage thoroughness in others as well as to make it the rule of his own life. To him is due the decision of many of the younger surgeons of the West to pursue post-graduate courses in the European universities.

Starting at the Cook County Hospital, he soon was given honor by other institutions. In 1880 he was curator of the Rush Medical College Museum; in 1884 professor of clinical surgery at the College of Physicians and Surgeons; nine years later professor of clinical surgery at Chicago Medical College. Rush Medical College honored him in 1899 with the chair of clinical surgery. Other hospitals than the Cook County claimed a share in his work. He is said to have performed between seven thousand and eight thousand postmortem examinations.

On the occasion of Dr. Fenger's sixtieth birthday, a testimonial banquet was given to him at the Auditorium Hotel by the medical profession. Nearly six hundred guests were present from Chicago and the Middle West and Northwest; also some prominent surgeons from the East. A loving cup was presented to him. Not long before the banquet Dr. Fenger had been honored by the King of Denmark, who conferred upon him the Order of Ridder of Dannebrog.

One of the regrettable features of Dr. Fenger's death is that it came before he had carried out a cherished idea of enjoying a country house. He had sold his city residence and this spring was to build in Winnetka, where he had spent his summers for several years, a Norwegian house, following to the minutest detail the architecture and arrangement of houses in his fatherland. He left a widow and two children. Up to his death he held the presidency of both the Chicago Medical and the Chicago Surgical Societies.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, March 1, 1902.

THE LEGAL RECOGNITION OF MIDWIVES—THE PIONEER OF THE OPEN-AIR TREATMENT.

Legislation for the regulation of obstetrical practice by midwives has been strongly opposed by a section of the medical profession in this country ostensibly in the interest of poor women suffering from the curse pronounced on Eve, but really from a less altruistic motive. It has been pointed out over and over again that legislation on the subject was urgently needed; that the medical profession would not be affected in any way—except perhaps beneficially—by such legislation inasmuch as the women for whom skilled help in their hour of trouble is to be provided are too poor to pay a doctor; and that Parliament would sooner or later be driven by the voice of the people to legislate on the subject. The Government has been in no hurry and has hitherto left the question an open one as to which its supporters could take any course they pleased. It has also sought to ascertain the views of the medical profession on the subject. Unfortunately, the profession, under the evil inspiration of a band of short-sighted irreconcilables, has taken up an attitude of mere selfish obstructiveness, and the Government, which would doubtless have been glad to give due weight to the advice of the General Medical Council if the profession had not allowed its feeling to be misinterpreted by a small band of noisy fanatics, is now evidently determined to dispense with any assistance from that quarter. On February 26th a bill for the legalization of the midwife passed its second reading in the House of Commons. Last year a measure which would have given the medical authorities a fairly tight hold on the midwives was defeated owing to the opposition of Sir Walter Foster and one or two other medical Members of Parliament. The present bill practically leaves the midwife uncontrolled. Sir Walter Foster, with the help of Sir John Batty Tuke, also a physician, again tried to wreck the bill, but Dr. Farquharson and Sir Michael Foster, the professor of physiology at Cambridge, strongly supported the bill, and the majority of the House had clearly made up their minds to pass it. An old Parliamentary hand, to use a phrase consecrated by Gladstonian usage, has told me that he has never seen such unanimity displayed on any subject before. The Government, which has a large and well-disciplined majority at its back, can easily pass the measure; and from what I hear it is determined to do so. The bill has virtually the support of every

section of the House, and Sir Walter Foster, who is a politician first and a physician afterward, will doubtless see the prudence of executing a strategical movement to the rear. Of course, in Parliament the unexpected often happens and the bill may even yet fall into one of the numerous traps which the rules of parliamentary procedure set for unwary legislators. But the chances are that it will become law in the course of the present session. If the profession does not like it, the Government might reply, *"Tu l'as voulu, Georges Dandin!"* The bulk of the profession, however, recognizes the need of legislation, but the controversy on the subject has been so acrimonious that men of moderate counsels did not care to take part in it. Hence, the voice of a handful of demagogues and men whose aim appears to be to transform the profession into a trades-union has been allowed to go forth as that of the medical profession.

The New Sydenham Society has just issued a volume containing among other things a reprint of "An Essay on the Treatment and Cure of Pulmonary Consumption on Principles Natural, Rational and Successful; with Suggestions for an Improved Plan of Treatment of the Disease Among the Lower Classes of Society; and a Relation of Several Cases Restored from the Last Stage of Consumption to a Good State of Health," by George Bodington. The work was originally published in 1840 and was totally forgotten till a few years ago when the open-air treatment of phthisis began to come into fashion. Bodington, defying that bogey of physicians of the early part of the nineteenth century, "phlogiston"—which he called the "raw head and bloody bones" of medical science—fed his consumptive patients generously, and initiated what was practically a system of sanatorium treatment in which great attention was paid to the dryness, mildness and purity of the air in which the patients lived, to "systematic arrangements with regard to exercise, diet and treatment, with the watchfulness daily—nay, almost hourly—over the patient by a medical superintendent." Bodington spoke out, with no uncertain sound, in condemnation of the practice prevalent in his day of shutting consumptive patients up in a close room, from which the atmospheric air was as far as possible excluded, "thus forcing them to breathe over and over again the same foul air contaminated with the diseased effluvia of their own persons." In speaking of treatment by the inhalation of gases of various kinds, he says that "the only gas fit for the lungs is the pure atmosphere freely administered without fear," adding that "its privation is the most constant and frequent cause of the progress of the disease." He goes on: "To live in and breathe freely the open air, without being deterred by the wind or weather, is one important and essential remedy in arresting its progress —one about which there appears to have generally prevailed a groundless alarm lest the consumptive patient should take cold."

One of the cases related in illustration of the beneficial effects of the open air treatment is that of a young girl of sixteen who in 1835 was believed to be doomed to an early grave. She was treated by Bodington on the principles just set forth, and in 1839 was in perfect health. Only a week ago (February 22d) the *British Medical Journal* published a letter from the patient herself stating that, now in her eighty-first year, she is still in fairly good health and able thankfully to enjoy the many mercies which surround her in her daily life. Throughout the sixty-six years which have elapsed since she was practically under sentence of death she has on the whole had remarkably good health.

Bodington spent the greater part of his professional life in charge of a lunatic asylum at Sutton Coldfield in Warwickshire. In the matter of the treatment of consumption he was far before his time; his book was practically killed by the reviewers and thus one of the most important advances in the treatment of disease made since the days of Hippocrates was delayed for half a century. Truly in medicine the light often shineth in darkness and the darkness understandeth it not!

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

SERPIGINOUS ULCER OF THE CORNEA—VACCINATION GRANULOMA—FUNCTIONAL MUSCULAR INSUFFICIENCY OF THE HEART VALVES—PARALYSIS OF THE QUADRICEPS FEMORIS —ASBESTOS UTENSILS FOR THE SICK—COLIC, BLEEDING AND INFLAMMATION OF THE KIDNEYS.

The German societies have recently listened to important contributions on a large variety of topics of which the following are the best:

Velhagen, at the Medical Society in Chemnitz, December 11, 1901, read a paper on the early diagnosis of serpiginous ulcer of the cornea and stated that he has for some time examined for pneumococci by means of cover-glass preparations, all the cases which came to him suffering with infiltration and ulcer of the cornea. In all cases of destructive serpiginous ulcer he found these germs usually in pure culture. On one occasion an infiltration was caused by a splinter of wood. Pneumococci were present and he cauterized the lesion with successful results. On three other occasions no pneumococci were found, although there was a rather large ulcer, iritis, hypopyon, and, in one patient, even dacryocystoblennorrhea. These patients recovered with better vision than those treated by the cautery.

Naether read a paper on the subject of granuloma following vaccination. This had occurred in about seven per cent. of his five hundred cases of revaccination, usually about the twentieth day after the vaccination and at the site of the scar where neither nodules nor pustules nor signs of inflammation were present. On the other hand there were granulation tumors of the size of ordinary beans which were diagnosed with the microscope as well as clinically. The cause of these seems to be one class of bacilli belonging to the pseudo-diphtheritic group which Nauwerk has cultivated both from lymph and from granulation together with staphylococci. This latter authority states that in ordinary pus these germs are not as harmless as many authors indicate.

F. Krause, at the Berlin Medical Society, January 15, 1902, reported a case operated on four years ago for paralysis of the quadriceps femoris. A cure was obtained by a transplantation of the flexor muscles of the thigh. When two years old the patient had a spinal paralysis which left the quadriceps femoris very much impaired and withered with a later contracture at the knee. Now, however, after the operation the patient possesses a certain gait, although, on account of the shortening of the limb, with limping. Electrical reaction showed the quadriceps muscle entirely paralyzed, while by stimulation of the flexor muscles the leg was promptly extended upon the thigh. At the operation the flexor muscles were liberated on the outer and inner aspects of the thigh and their tendons were sewed on either side of the patella.

Kornfeld, at the Society for Internal Medicine at Berlin, on January 13, 1902, showed numerous utensils for the sick. These consisted of about 95 per cent. of asbestos, which the author states would on the long run be much less costly than the renewal of furniture and utensils made of wood. Both characteristics, cheapness and indestructibility by fire, induce one to try them.

They can also be sterilized easily by making them red hot. The articles which he suggests are spit cups, mouth spatulæ and similar instruments. He hoped to succeed in the future in making chairs, closets and the like of the material.

Senator read a paper on colic, bleeding and inflammation of the kidneys, in which he made the following points. James Israel has recently published accounts of the results of his operation of splitting the kidney for colic, bleeding and even inflammation of the organ. Certain specialists in genito-urinary diseases have also been following his example. Senator made his paper a contention against these observations. Israel has had such good results after these interventions that in certain cases he assumes there is a strong hyperemia of the kidney which goes on to the stretching of the capsule of the organ and then to great pain. All of these conditions, he claims, are relieved by the operation of splitting the kidney. In a similar manner, by relieving the tension, bleeding may be overcome and occasionally a good influence exerted upon inflammation itself. Senator cured a case of renal hemophilia as early as 1890 by removal of the diseased organ, but he now believes that the cases which Israel cites did not, for the most part, present this condition of stretching of the capsule. He makes these observations after having seen a number of such cases himself and after noting that in Israel's own report of fourteen cases the kidney was noted as being soft and flabby or in a similar condition. Senator therefore thinks that this explanation of renal colic is not satisfactory and that this form of surgical operation is hardly justifiable. Furthermore, if the object of this operation be to cure congestion or bleeding, the bleeding itself would be the best method of relieving the congestion. Naunyn, indeed, reported three cases of rapid bleeding in inflammation of the kidney which recovered without any operation whatever. Pel and Rosenstein have lately declared themselves against the operation, while surgeons and genito-urinary specialists have taken it up with eagerness. Finally, as to nephritis, only small sections were removed and examined microscopically. It is probably true that in no case was there well-developed Bright's disease, but rather localized affections of the kidney. Israel himself, however, did not go to such extremes as his imitators who have proceeded without any consideration.

Lenhartz, at the Physicians' Society in Hamburg, January 7, 1902, delivered an oration celebrating the twenty-fifth anniversary of E. Fraenkel which occurred on January 1, 1902. That date marked twenty-five years of unbroken service as prosector in the various institutions in Hamburg. The speaker paid a tribute to his accomplishments, intelligence, wisdom, scientifically critical attitude and powers as a teacher. He closed by stating that the greatest number of physicians practising in Hamburg valued their relations with Fraenkel and considered themselves fortunate therein. His chief service to them has been that of furnishing the means of knowing much in pathology.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Section on Medicine.

Stated Meeting, Held February 18, 1902.

E. Franklin Smith, M.D., Chairman.

Etiology of Endo- and Pericarditis.—Dr. Frederick A. Packard of Philadelphia read a paper involving the consideration of some points in the etiology and diagnosis of endocarditis and pericarditis. He dwelt particularly on the fact that microbes play an important rôle in the etiology of endocarditis and that even when they have disappeared completely from the valve lesions at autopsy, this is no sign that at some time they were not present to begin the series of pathological changes. There is, however, a chronic endocarditis that develops without inflammation and that is due to high tension in the arterial system. This can no more be considered truly inflammatory than can the changes in a cyanotic liver be considered to be due to a true hepatitis.

Pericarditis is a more purely local disorder than is endocarditis, because of the fact that it has no direct connection with the blood-stream. One of the functions of the pericardium, recently insisted on, is its power to prevent overdistention of the heart. In this it acts like the cover of a football or the second bulb in a Paquelin cautery. Dr. Packard dwelt particularly on certain symptoms that should arouse suspicion of the pericarditis. One of these is delirium, without the hyperpyrexia of rheumatism or renal involvement; when a delirious patient is admitted to the hospital it is always well to examine the precardium. Another suspicious sign that has recently been pointed out is an inequality of the pupils. Dr. Packard brought out the fact that the usual diagnostic symptom of triangular dulness with the base downward is not often present in pericarditis. The most pathognomonic symptom seems to be dulness in the fifth interspace to the right of the sternum. Dr. Packard's paper will appear in full in a subsequent issue of the Medical News.

Dr. William H. Porter said that there were many non-inflammatory conditions of the pericardium that must be borne in mind. The milk-white patches often found postmortem are significant of fibrotic changes of a not very serious character. Punctate hemorrhages into the pericardium are not unusual and occur in such diseases as scurvy and leucocythemia and in certain of the infectious fevers. New growths are rare and yet occur with sufficient frequency to make them of interest even to the general practitioner. Gummatous formations are more frequent than others. Tuberculous lesions of the pericardium are really inflammatory, but because of their slow course they resemble the non-inflammatory conditions. Miliary tuberculosis is the most frequent form and may be accompanied by hemorrhagic exudation. The true inflammatory processes in the pericardium are mainly serous and fibrous; there is also the severer form of purulent pericarditis. The endocardium is less vascular than the pericardium and has therefore less tendency to redness or to hemorrhagic conditions than the pericardium. It is manifest that in inflammatory conditions causing exudation of serum this material is carried away by the blood-stream. Congestive conditions of the layer beneath the superficial covering of the endocardium is the first change in inflammatory conditions, and this causes an overgrowth of the superficial layer of cells. There are various grades of proliferation and after the proliferative process degenerative changes may set in, causing a deposit of fat or setting up ulceration or calcification. When small pus foci occur the process is known as malignant endocarditis.

Simple endocarditis is not, as a rule, bacterial in origin, but rather toxic. The toxins are manufactured by micro-organisms situated somewhere in the body, but usually not localized on the tissues of the valves themselves. As a rule, micro-organisms are not found in the vegetation on the heart valve at autopsy. It is not improbable that the changes thus seen are rather the result of a previous inflammatory condition than of an actually progressive inflammatory process.

Treatment of Endocarditis.—The first consideration with regard to endocarditis must necessarily be

the possibility of its prevention. Unfortunately, however, not much practical good can be done in this way. It is impossible to stop the rheumatic process to which the endocarditis is usually due, and the other great causes of endocarditis, Bright's disease and syphilis, are equally obstinate to curative treatment. One can, by supporting the system, enable it to throw off the symptoms. The most important idea for this is absolute rest for a prolonged period.

Treatment of Pericarditis.—For the discomfort that is so often characteristic of pericarditis an ice-bag or a flyblister to the precordium may prove useful. The blister acts reflexly and probably also relieves pressure upon sensitive nerve-endings in the pericardium. With regard to tapping the pericardium there is no established rule; if the heart's action become embarrassed, it must be relieved by aspiration. Unlike tapping for pleurisy this operation in pericarditis is never without its dangers. If, however, a pericardial effusion resist all absorptive treatment, tapping of the pericardial sac, in order to relieve the heart of the inconvenience and interference with its action due to the presence of the fluid, is not only justified but indicated. An article by Dr. Porter on this subject will appear in a subsequent issue of the MEDICAL NEWS.

Dr. Stephen Burt, in discussing the papers on endocarditis and pericarditis, said that valvular lesions do not represent an active process, but are the remains of an inflammatory condition. Usually they are not progressive, hence it may well happen that people with a limited valvular lesion may live on for many years. Dr. Burt has recently seen a patient who has lived for more than forty years with a distinct aortic lesion. The prognosis of these cases is not nearly so fatal as has been thought and the life insurance companies are gradually coming to the realization that many of these cases may well be insured under certain conditions. With regard to the diagnosis of pericarditis, Dr. Burt considers that the superficial character of the murmur in pericarditis is the most distinctive sign. Pericarditis is undoubtedly often missed. With regard to the treatment of endocarditis Dr. Burt considers that digitalis, in spite of supposed physiological objections that have been urged for certain conditions, must always be the sheet anchor.

Diagnosis of Endocarditis.—Dr. Conner considers that it is unfortunate that students somehow get the idea that a valvular lesion can be diagnosed by means of the murmur alone. The murmur is only one, and not always the most important, physical sign of the existence of a heart lesion. The character and position of the apex beat and the size of the heart are at least as important as the murmur. With regard to the diagnosis of pericarditis, Dr. Connor says that no single pathognomonic sign can be depended on. Not infrequently dilatation of the heart is associated with pericarditis and dulness may be found at the right border of the sternum and at the fifth interspace without necessarily indicating an affection of the pericardium. Some of the signs that arouse suspicion of the presence of pericarditis are important. Dr. Connor has now under observation a case in which inequality of the pupils exists.

Malignant Endocarditis Without Germs.—Dr. Lambert said that it seems not impossible for a typical case of malignant endocarditis to terminate fatally within a few days without any micro-organisms in the lesions being disclosed at autopsy. He has recently seen a case of rheumatism complicated by endocarditis, with the typical temperature curve of malignant endocarditis, which proved fatal. Five cultures taken from the valve, some of them with anaerobic precautions, failed to develop and the result as regards the presence of microbes was absolutely negative. He has also seen a case of septic temperature followed by sudden death in which infarcts in the pericardium and vegetation on the valves were found, and yet it was impossible to obtain cultures from the lesions.

Dr. Lambert considers that a very important diagnostic auxiliary in cases of suspected pericarditis is percussion with the patient bending well forward. The pericardial sac is so constructed that small amounts of fluid gravitate back from the chest-wall and so cannot be detected by percussion. If the patient bends forward, however, the fluid can be recognized rather easily and the area of dulness on both sides of the heart will be found to be increased. This is a bit of diagnostic technic that Dr. Chvostek of Vienna insisted on and frequently used with excellent results.

Valvular Degeneration.—Dr. Quimby said that there are two facts that must be borne in mind with regard to the development of valvular endocarditis. The mitral valve curtain is not a valve in the ordinary sense of the word like the aortic valve, but is a partition drawn up against the column of blood and holding it up. This physiological fact explains the mechanism of the Flint murmur which is so often a matter of dispute. It must be remembered that valvular defects developing after middle life are not always inflammatory, but may be degenerative. They are the result of pure traumatism, of irritative properties of the blood and disturbance of the muscular power of the heart. Men who work at high tension develop a progressive murmur, the result of the overuse of the tissues. The prophylaxis of these lesions is the relief of high arterial tension by a let-up in the method of life that provides for more relaxation.

Hydrophobia and Pericarditis.—Dr. James J. Walsh said that the diagnosis of pericarditis is not difficult if it is suspected. The condition is often overlooked because attention is not called to the precordial region and careful search for the physical signs of pericarditis is not made. Extraneous signs, then, that arouse suspicion of the existence of pericarditis are important. Dr. Packer has called attention to the delirium that often accompanies pericarditis and to the inequality of the pupils that may occur. French writers have called attention to the fact that the involvement of the recurrent laryngeal nerve, because of pressure within the pericardium, may lead to the development of a set of symptoms resembling hydrophobia. There is a deglutition spasm brought on by even the thought of food which resembles that seen in true rabies and which is due to the same nervous reflex. Many of the cases of hydrophobia said to occur years after a dog-bite are really due to the existence of an overlooked pericarditis. Dr. Walsh remarked that another bit of technic in use at the Vienna hospital, the examination of patients in the knee-elbow position, is often useful in ascertaining the presence of small quantities of fluid in the pericardium which have escaped other methods of detection.

Mortality From Pneumonia.—Dr. Stephen D. Burt said that the average length of life in this country has increased very notably. In 1890 it was about 31.4 years. According to the census of 1900 it is now over 35 years. There has been a decline of ten per cent. in the mortality of the large cities. Notwithstanding this there is an increase in the mortality from pneumonia. The three most prominent causes of death in the mortality statistics are pneumonia, consumption and heart disease. Consumption during the last decade has increased very considerably in fatality. Heart disease is still as important as ever in the statistics, but it is probable that better diagnostic methods have revealed more cases than before and that there is really

a lessened mortality. Pneumonia, however, is undoubtedly taking off many more people than formerly; in the winter and early spring its mortality is almost in direct ratio to the density of the population. It attacks especially the weaklings and the old and seems to be particularly fatal in the negro race.

Infection of Pneumonia.—Pneumonia is infectious through the sputum of patients suffering from the disease. Owing to the fact that pneumonia patients are confined to their rooms, this is not so widely scattered as in the case of tuberculosis, but there is undoubtedly more danger of contagion than has been thought. It is well known that epidemics of the disease occur in barracks, hospitals, asylums and schools. This feature of the disease was recognized even before the discovery of the microbic cause of pneumonia. The disease would undoubtedly spread much more widely than it does, except that a special predisposition seems to be necessary for its acquirement. Overcrowded cars and ferries and overheated dwelling-places without proper ventilation not only furnish the favorite conditions for the pneumococcus, but also foster conditions of the mucous membrane that lower resistive vitality. The pneumococcus exists in the mouth of even healthy individuals and it is probable that the changes which lower resistive vitality make it virulent.

Prophylaxis of Pneumonia.—The best prophylaxis of the disease consists in avoiding exposure to inclement weather, especially at times when the system is not over strong, and in avoiding crowded places of all kinds. Ill-ventilated meeting-places, be they churches, theaters, public halls, or schools, are the breeding-places of pneumonia. Discrimination must also be exercised with regard to food, to water and especially to air; the mouth should occasionally be washed out with some mild antiseptic solution, which, however, should possess sufficient strength to be effective. Rinsing the mouth with formaldehyde, twenty drops to the pint of water, is undoubtedly an excellent precaution. The sputum of patients suffering from pneumonia should be disinfected.

City Sanitation.—Little as it is realized, there is the strongest kind of solidarity as regards health between the rich and poor in large cities. The existence of the sanitary tenement-house saves the mansion from many an otherwise annoying or perhaps fatal illness. There were 10,500 deaths from pneumonia in New York during the year 1901, and yet few cities are so healthfully situated. Its island location, with abundance of sunshine during the year and proximity to the ocean, makes it eminently salubrious if but proper care be taken of sanitary conditions. More careful ventilation of theaters, shops, churches, schools is needed. The streets should be washed and swept as they are in Paris and arrangements should be made by which offending material, such as the excrement of animals and human sputum, should not be allowed to be cast into the streets. No doubt, improvement has come along these lines of late, but there is still much to be done. The reward of hygienic regulation is easy to foresee.

Prevalence of Pneumonia.—Dr. W. Gilman Thompson said that pneumonia is undoubtedly more prevalent than it used to be and its frequency in the statistics is not due merely to better diagnosis. Watson, in his Text-Book of Medicine issued thirty years ago, said that he saw perhaps five to six cases of idiopathic pneumonia in a year; for a man in extensive hospital practice this was, of course, an extremely small number. There is no doubt that epidemics of pneumonia may occur. Dr. Thompson has seen such an epidemic in a ward of the Presbyterian Hospital, among patients who had been for a considerable time in the institution, as the result of the admission of a pneumonia patient. It is always insisted that lowered vitality is necessary for the contraction of pneumonia, but it will be found to occur almost as frequently among people of robust health.

Treatment of Pneumonia.—Dr. Beverley Robinson said that pneumonia is undoubtedly contagious and seems to have a tendency to affect especially relatives of the patient who are run-down by the worry and loss of sleep consequent upon nursing. Care should be taken, therefore, to disinfect the patient's sputum and the hands that come in contact with this secretion. Undoubtedly the treatment of pneumonia by an antiseptic, one of the creosote preparations, for instance, helps to prevent the spread of the disease. Probably no remedy will abort the disease, but the creosote preparations add considerably to the comfort of the patient. Dr. Robinson thinks that Dr. L. Nammack's excellent résumé of the four things necessary in the treatment of pneumonia cases should be in every practitioner's mind, namely, strychnine, nitroglycerin, oxygen and alcohol. Dr. Robinson suggests, as Opie said to the man who asked him what he mixed his paints with, that these four remedies be mixed with brains.

Relative Increase of Pneumonia.—Dr. Andrew H. Smith said that while pneumonia is actually on the increase, this is really relative to certain factors. Pneumonia is especially fatal in old persons and at the present time, as the result of better hygienic surroundings, persons live to an older age than before. Besides, in the longer average duration of life, individuals have more opportunity to pick up the pathological conditions of heart and kidneys, for instance, that make the prognosis of pneumonia so much more serious than formerly.

Varied Virulence.—The pneumococcus is very varied in its virulence; in the laboratory it is very well known that while some specimens are very fatal to animals, others produce scarcely any fatal effect. Epidemics of pneumonia are prone to occur, especially when the disease develops in very virulent form. It is probable that the ordinary mucous membranes of the body are not favorable to the development of the pneumococcus. It does not seem to grow well on ciliated epithelia, while serous membranes and especially mucous membranes without cilia, are favorable locations for its multiplication. Anyone who has tried to obtain specimens of the microbe knows how fastidious it is with regard to growing on artificial culture-media. It is extremely difficult to grow for successive generations in the laboratory. When the pneumococcus reaches the air-cells in the lungs, however, it grows very rapidly and pneumonia results. When the inflammatory process reaches the boundaries of a lobe it is mechanically arrested, hence the occurrence of lobar pneumonia.

Treatment of Pneumonia.—The pneumococcus is not very resistant to antiseptic influences and so there is the temptation to use antiseptics in the treatment of pneumonia. Some of the creosote preparations, especially creosote carbonate, under the form creosotal, have proven especially useful; it is easier to take than any of the other forms of creosote. When this drug is used ninety per cent. of the cases of pneumonia go on to resolution by lysis instead of by crisis. Other remedies must not be neglected and nitroglycerin is especially valuable, being, in this disease of greater worth than digitalis. When the patient becomes blue it is a signal for the free use of nitroglycerin, rather than digitalis.

Constitutional and Local Infection.—Dr. Frederick A. Packard said that it is perhaps a mistake in present-day medicine to regard such diseases as typhoid

fever and pneumonia as constitutional with local manifestations. Typhoid fever is a primary infection of the intestine and only secondarily infects the general system. Pneumonia consists of an infection of the lungs and the resulting toxemia is only secondary. From this standpoint the therapeutics of these diseases is more encouraging and a truer idea of the condition is obtained.

Pneumonia at Groton.—Dr. Alexander Lambert said that the series of cases of pneumonia that occurred at Groton was not, in his opinion, an epidemic of pneumonia, but the coincidence of frank cases of the disease in school-boys who were exposed to the rather changeable weather of the last few weeks. Dr. Lambert called attention to the fact that pneumonia always remains local except in fatal cases. The pneumococcus can be discovered in the blood only within from twenty-four to forty-eight hours before death. Cases with a good prognosis invariably show no pneumococci in the blood.

Dr. Morris Manges said that if sufficient blood be taken for examination the pneumococcus will be found very frequently in the blood of pneumonia patients. Previous bacteriological examinations in this regard have been at fault because of errors of technic. Pneumonia seems still to fall best into the category of constitutional diseases with a local manifestation.

BOOK REVIEWS.

Transactions of the American Ophthalmological Society. Thirty-Seventh Annual Meeting, New London, Conn., 1901. Hartford. Published by the Society. 1901.

In contrast with the Transactions of the sister society, the American Otological, for the same year, these are of much greater value, not merely in the quality of the ordinary material, but also in the fact that they embrace two most desirable new features. These are, first, a report covering 40 pages "On the Supplementary Histories of Cases Recorded in the Transactions of the Society Prior to 1900;" second, a report covering 45 pages, "On Standards and Methods of Examining the Acuteness of Vision, Color-Sense and Hearing." This last report is most careful and exhaustive and is of great value and authority.

Two of the papers presented were unusually valuable in their sweep and interest. These were presented by Drs. de Schweinitz and Bull, the first on glaucoma, the second on metastatic choroiditis. The whole volume is up to the highest type of its class.

A Guide to the Microscopic Examination of the Eye. By Professor R. Greef, Surgeon, Ophthalmic Department, Royal Charity Hospital, Berlin. Translated from the Second German Edition by Hugh Walker, M.A., M.B., C.M. Price $1.25. P. Blakiston's Son & Co., Philadelphia.

This monograph of 171 pages appears to us to be well-nigh complete and perfect both in form, make-up and material. The paper has that soft tint which is much more restful to the eyes than the glaring white paper so generally used in this country. The type even has a most perfect character of its own. This volume contains all essential information for the most complete microscopical examination of every tissue of the eye. Three-fourths of the book are devoted to general considerations of the means of preparing and caring for the tissues, methods of fixing, hardening, embedding, staining; specific methods of staining; demonstration of definite substances, such as cholesterin and tissue elements. The second part of the book occupies the remaining fourth of it and studies in detail the cornea, iris and choroid, lens, zonula ciliaris, retina and optic nerve. For compactness and elegance of form and for concise yet full and thorough treatment of the subject, the book is a model.

Transactions of the American Orthopedic Association. Fourteenth session, held at Washington, D. C., May 1, 2 and 3, 1900. Volume XIII.

Since America has been the pioneer in orthopedic work, it follows that the transactions of her association representative of this department of surgery must always be of great interest and value. The association is to be cordially congratulated on presenting a volume of its own making which in every detail is the equal of its predecessors. The paper is pure, the type large and clear; the illustrations—particularly the photographic reproductions—are admirable.

The volume is introduced by an address of the President, Dr. Harry M. Sherman. It is an able plea for the furtherance of orthopedic instruction in our medical schools. In speaking of the far-reaching need of this, after citing the unhappy fact that with the exception of genito-urinary work orthopedics comes at the bottom of this list, only a little more than one-half of the colleges giving recognized orthopedic courses, he says: "It is not as a sentimentalist that I mention the child's age and his helplessness. It is because the acts committed on him when he is young and helpless reach out and affect him when he is neither. The old can get but a few years' benefit from any surgical procedure; the middle-aged may have only the last half of life made or marred by surgery. But for the child it is different. Success or failure is for life; it will tell for good or evil in the developing of mind and character."

While every paper presents points of interest, there are some which seem particularly progressive. Dr. Joel E. Goldthwait of Boston, in summarizing his conclusions on knee-joint surgery, says: "Operations upon joints need not be feared more than operation upon other parts." The general trend of opinion among the members is strongly adverse to forcible correction of the deformity in Pott's disease—the New York men in particular feel that they have demonstrated its futility. In discussing the treatment of abscesses of the joints, Dr. A. M. Phelps, after denouncing the "let-alone" method and describing the results obtained by establishing very free drainage and disinfection by pure carbolic followed by alcohol, closes with the following words, which must seem very reasonable to the general surgeon: "I believe that we, as orthopedic surgeons, have no right to violate established scientific surgical laws." These and many other papers make the Transactions of the thirteenth congress of very unusual interest and value.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Eighth Annual Report of the Board of Managers of the Craig Colony for Epileptics. 1901.

Studies in the Psychology of Sex. By Havelock Ellis. 8vo, 272 pages. F. A. Davis Company, Philadelphia.

American Edition of Nothnagel's Encyclopedia. Variola, Varicella, Cholera, Erysipelas, Whooping-Cough, Hay-Fever. By Drs. Immermann, Jurgensen, Liebermeister, Lenhartz and Sticker. Edited by Dr. John W. Moore. 8vo, 682 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

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ORIGINAL ARTICLES.

MALNUTRITION AS SHOWN IN CONGENITAL SYPHILIS.

BY CHARLES GILMORE KERLEY, M.D.,
OF NEW YORK.

A RECENT severe syphilitic infection in one or both parents results in either sterility or, if conception occurs, the death of the fetus. When there is a more remote infection or one in which the severity is less pronounced, perhaps as a result of the treatment, the pregnancy may go to term, the fruit showing marked evidences of disease; or, if the child be born apparently well, the characteristic signs of congenital syphilis appear in a month or two.

The so-called tardy hereditary syphilis, manifested by faulty development, and the well-known interstitial changes indicate a more remote infection on the part of the parents or their more successful treatment. The so-called "cured" syphilitics are the parents of tardy hereditary cases. When does the syphilitic poison in an individual completely lose its power, so that the offspring will show no signs of contamination? The answer is this: We can never promise a man or woman who has had syphilis that his or her children will be free from the disease.

Tardy malnutrition is the most remote manifestation in the offspring which tells us that the child has congenital syphilis. Syphilis is a cause of malnutrition in the early months of life, but it differs in no respect from the malnutrition associated with any other grave chronic disorder, and, as a symptom of diagnostic worth of early congenital syphilis, its value has been greatly exaggerated. When malnutrition is present in early cases, other pronounced signs are always present to explain the malnutrition. In older children, those of from three or four years to puberty, the case is different. Persistent malnutrition in the absence of apparently adequate cause and in spite of supporting treatment may mean congenital syphilis without any symptom other than malnutrition.

I have seen six cases of this nature in which the fathers of the patients confessed to having had syphilis. In three the diagnosis was further confirmed by successful antisyphilitic treatment. Two of these children were sister and brother, aged respectively five and seven years. They came under my care several years ago. Both parents were strong and vigorous. The father was forty-five, the mother thirty-three years of age; the family history was excellent. There had been no miscarriages. The patients were the only children. They had been fairly well as infants, no history of snuffles, of marked restlessness nor of rash. The heart and lungs were negative, the muscles were soft and poorly developed; the boy had adenoids. They were undersized, underweight, slight, frail children. They became tired easily, could not bear the cold, and their appetite was always poor. The father denied having had syphilis. They had been treated by several physicians, and had been systematically dieted, drugged, bathed, oiled, and aired. When they came under my care I continued this treatment for six months, because I did not know anything better to do. The results were negative. Again I questioned the father, who confessed to having had syphilis fifteen years before his marriage. He had passed through the secondary stage, had been treated abroad, and had been told that he was cured and that he might marry with safety. I changed the treatment at once; gave bichloride of mercury, $^1/_{80}$ grain, with iodide of potassium, 5 grains, three times a day. This change of treatment was followed by the most satisfactory results. In six months, under specific treatment, which was changed from time to time, the children became strong, active and well nourished, The mother, who remains ignorant of the nature of the trouble, has never quite forgiven me, because it was six months before I found the tonic her children needed.

A mother brought her nine-year-old son, at his (the son's) request, to see if he could not be made like other boys, who could play football, baseball and who could skate without having to sit down and rest every few minutes. The boy's father is a large, powerful man, weighing over 200 pounds. The mother is a strong, well-built woman and maintains that she is in perfect health. She had never had a miscarriage. The family history was negative, with the exception that the mother said that the father, who was absent, had had syphilis, and remarked that the question had never before been asked her. The boy weighed 63 pounds. He was of large frame, but of very poor muscular development. The heart, lungs, kidneys, and eyes were negative. The examination further revealed that fact that both epitrochlear glands were enlarged, which was the only evidence of syphilis other than malnutrition and general weakness. He was pale and complained of being chronically tired; his appetite was poor. He had been treated by diet, baths, iron, quinine, oil, etc., without benefit. I gave him bichloride of mercury $^1/_{60}$ grain, three times a day, but made no change in diet or in the habits of life. During the next four months he gained five pounds in weight. The average gain for a boy of this age for one year is six and one-half pounds. Under the bichloride, the appetite and the blood conditions im-

proved, and there was an increase in strength and endurance. To-day, one year after beginning treatment, he weighs 70½ pounds, and to all outward appearances is a perfectly well boy. My plan of treatment in his case for one month was bichloride, $^1/_{60}$ grain, three times a day, and one month's rest from treatment. In this case the infection of the father dated back twelve years before the boy's birth.

The three other children varied in age from four to seven years. Two of these were brother and sister. They were from one to two inches undersized and from two to four pounds underweight. They suffered from lowered vitality and were thin, pale and delicate in appearance. Heart, lungs and eyes of each were negative. The parents were in average good health. The two fathers confessed to having had syphilis, the infection antedating conception ten years or more in both. They had been treated, pronounced cured and told to marry. The children improved satisfactorily under treatment, which was discontinued after the improvement was noticed, and they passed from under my observation.

I require all of my cases of apparently-cured congenital syphilis to report every third month.

Given a family such as this, father and mother of average health and strength, with a negative family history, child or children "delicate," undersized and underweight, with lack of endurance, low vitality, indifferent food capacity, poor appetite, I add bichloride of mercury or iodide of potassium to the treatment, regardless of the social standing of the parents, and am usually gratified, but never surprised, at the satisfactory outcome.

I have learned to look with suspicion upon puny, delicate children of parents who have average good health, when there is no discoverable reason for the malnutrition, and who persistently resist well-directed hygienic and supporting measures.

THE NECESSITY FOR SANITARY SAFEGUARDS ON THE CENTRAL AMERICAN CANALS.

BY GEORGE A. SOPER, PH.D.,
OF NEW YORK.

A paper entiled "Sanitary Aspects of the Panama and Nicaragua Canals," by the present writer, published in Medical News, January 4, 1902, has brought forth a critical reply (Medical News, February 1, 1902) from one who does not agree that both routes present conditions particularly unfavorable to health and that the Panama line has some features which give it an advantage over its rival from the standpoint of hygiene. It was hoped that the paper would bring about a general discussion which would throw more light on the conditions which will be likely to obtain if a ship canal is built across the Isthmus, but, no further criticism being apparently forthcoming, it remains to review the remarks which have been offered.

At the outset the criticism is very sweeping, for its object is to discredit the author's information or the avowed purpose of the paper, which was to inquire from a disinterested standpoint into conditions which make for or against health in the countries and along the routes which are now under consideration. To this general charge no extended reply is necessary. In the preparation of the paper, every available source of information was carefully scrutinized and a very large number of official documents and records of unprejudiced observers were examined; the facts given represent what, in the author's view, were the most significant features of this evidence in condensed form. Finally, as to bias, the author is not and has never been connected in any way with either canal enterprise, while it is to be noted that the critic announces himself as former surgeon to the company which undertook to build the Nicaragua Canal in 1889.

One of the first points of criticism has to do with the precise meaning of the term "Isthmus of Central America." To quote the words of the critic, "The writer of the article referred to also shows a lack of precise knowledge of geographical as well as political lines by confounding Central America with the Isthmus." He then declares that "Isthmus" applies only to Panama. He seems to forget the Isthmus of Darien and the Isthmus of Tehuantepec and the fact that the whole of that narrow stretch of land between North and South America is in reality a great isthmus. There is the best of authority[1] for extending the term "Isthmus of Central America" to cover all the country between the land west of the Atrato River in Colombia and that part of Mexico which lies east of Tehuantepec. This is the sense in which the author has employed it.

Other exceptions taken by the critic concern the healthfulness of Central America and particularly of Nicaragua. The present writer believes that conditions in Central America are not favorable to settlers of Northern birth. The critic denies this and asserts that there are many beautiful and healthful spots where large foreign colonies have lived successfully for years. It is regretted that he has not strengthened his statements by giving definite facts and that his "large colonies" are not instanced. In the limited literature of the subject, it is stated that early Anglo-Saxon immigration met with disaster. Davidson[2] tells of two different parties of Scotch colonists who landed at Darien and met with great loss of life through disease. In recent times the Central American Republics have offered tempting inducements to foreign settlers, but without apparently attracting "large colonies."

Nicaragua, east of the Cordilleras, is mostly unexplored and inhabited only by wild Indians except on the immediate coast.[3] According to the census of 1892[4] the number of foreign-born

[1] Senate Doc. No. 54, 57th Congress, 1st session, Dec., 1901, p. 69.
[2] Davidson. Geographical Pathology, 1892, p. 890.
[3] Francis Le Baron. Monthly Bulletin, Bureau of American Republics, September, 1897, Vol. V., No. 3, p. 346.
[4] Statesman's Year-Book, 1898, p. 797.

settlers in Nicaragua is 371, of whom 200 are Anglo-Saxons. Costa Rica, more favored in respect to population and distribution of wealth, had 792 Anglo-Saxon settlers[1] in the same year. The roads are reported as poor and the total length of railways in both countries in 1900 was 208 miles.

It is true that all climates from the torrid to the frigid are found between the lowlands and mountaintops of Central America, but it should be remembered that the climates which are available to foreigners who desire to settle permanently are only those which are reasonably accessible by railroads and navigable streams.

With respect to the health of the Maritime Canal Company's employees during their operations in Nicaragua, the critic declares with italic emphasis that carefully-kept medical records show that the death-rate among the employees at work along the route of the canal was seven-tenths of one per cent. Either this statement or the text of an official report[2] of the canal company to the United States Government is in error. Reference to these authoritative data shows that seven-tenths of one per cent. was the hospital death-rate from diseases which the Maritime Canal Company considered were peculiar to the country.

Inasmuch as the critic makes large capital of the fact that but little disease has occurred along the Nicaragua route, the reason for this apparent exemption may as well be stated. One of the Isthmian Canal Commissioners admirably explains the situation when he says: "The Nicaragua route is practically uninhabited and consequently practically no sickness exists there."[3]

And there is an equally good reason why the death-rate observed at the time of the Maritime Canal Company's work was low. The operations of the company extended from 1889 to 1893, but a Government report[4] declares that: "During this period of over three years comparatively little work was accomplished." The work actually done is stated on the Isthmian Canal Commission's authority to have consisted in a single-track railroad eleven and a third miles long, thirty-nine buildings, wharves and a pier, some sea dredging and canal cuttings, the latter aggregating less than two miles in length. In addition, the company reported that several miles of timber had been felled and some rock had been removed from the Machuca rapids.

This inventory indicates that very little dangerous work was attempted by the Maritime Canal Company, while every precaution against the introduction and spread of infectious diseases known to the promoters was undertaken.[5] Under the circumstances it is not strange that competent authorities should consider the health records of the company to have little bearing on the conditions which would probably occur were serious work on the Nicaragua Canal undertaken.[1]

To the present writer the principal sanitary dangers incident to the construction of a ship canal across Central America seem fairly evident. According to the belief of the day, epidemic diseases do not spring from the earth or air *de novo*. They have a specific origin and this is usually to be found in the secretions and offscourings of persons who are already ill. Air, soil and water may harbor mosquitoes and other vehicles of disease and may themselves act as carriers of bacterial poisons, but they are powerless to produce an epidemic of cholera, yellow fever or typhoid, for example, unless they become infected. How the first cases are imported to a new territory can easily be imagined. In a great mass of people there are always some who are suffering from mild forms or who are in ambulant stages of transmissible diseases. Among camp-followers and the adventurous idlers who travel with armies infectious diseases are universally common.

To complete either canal, from ten to fifteen and possibly twenty thousand men would have to occupy the line for eight or ten years. The laborers would be principally Jamaica negroes and Indians, unused to restraint and unfamiliar with the principles and practices of hygiene. All would have to be sheltered, fed, disciplined and doctored like so many soldiers.

Hygiene is the precaution which science offers to safeguard the health and lives of the men. The present writer believes that the methods of sanitation and health protection which are available to-day for such purposes are adequate, if properly applied, to avoid such terrible sacrifices of life as have been witnessed in times past. That there would be difficulty in applying the principles of hygiene in the effective manner demanded he thinks should not be denied. Any argument which tends to minimize our appreciation of the dangers incident to building a ship canal across Central America is liable to do the great harm of making more remote the chance that full and comprehensive preparations to meet the conditions will be made.

As compared with the Nicaragua route, the Panama line appears to the present writer to have some distinct advantages for health, among which the following may be mentioned: The Panama route has less length of swamp to be excavated, less total length and less rainfall; fewer laborers would be required and their greater concentration on the Panama route would permit the sanitary organization necessary for their protection to be more compact and complete and consequently more efficient.

Finally, the last question to which the critic has addressed himself, the permanent sanitary condition of the canal, lends to his argument a peculiar climax. His picturesque description of "the

[1] Statesman's Year-Book, 1900, p. 483.
[2] Annual Report of the Maritime Canal Company of Nicaragua to United States Secretary of the Interior, 1891. See Senate Executive Doc. No. 4, 52d Congress, 1st session, Dec. 10, 1891.
[3] Prof. W. H. Burr. Scribner's Magazine, Feb., 1902.
[4] Senate Doc. No. 54, 52d Congress, 1st session, Dec., 1901, p. 165.
[5] Annual Report of the Maritime Canal Company of Nicaragua to United States Secretary of the Interior, 1892. See Senate Executive Doc. No. 1, 52d Congress, 2d session, Dec. 5, 1892.

[1] Gen. H. L. Abbott, Engineering Magazine, Vol. XXII., No. 4, Jan., 1902.

Island of Nicaragua" and his prophecy that it will become "a favorite winter resort, fully as attractive and healthy as some of our West Indian Meccas for pleasure-seekers," are not convincing proof that the lake region is, as he asserts, "notoriously healthy."

The sufficient reason why the United States is to build a canal across the Central American isthmus is that such a waterway is desired for the safe and convenient passage of American ships. The study of the sanitary aspects of the two lines which the present writer has made leads to the conclusion that, while it is within the bounds of practicability to keep either comparatively free from epidemic diseases, the Panama route would entail less risk and less expense.

A REPORT ON THE USE OF ANTIPHTHISIC SERUM T. R.

BY EARL SPRAGUE BULLOCK, M.D.,

OF SILVER CITY, N. M.;

MEDICAL DIRECTOR, ST. JOSEPH'S SANATORIUM, SILVER CITY, N. M.; FORMERLY PATHOLOGIST AND PHYSICAL DIAGNOSTICIAN, U. S. GENERAL HOSPITAL FOR TUBERCULOSIS, FORT BAYARD, N. M.

A COMMUNICATION dated October 11, 1900, from John T. Milliken & Co., of St. Louis, Mo., was forwarded to the commanding officer of the United States General Hospital, Fort Bayard, N. M., through the office of the Surgeon-General, in which an offer was made to supply that hospital with their serum in sufficient quantity to make a test of its utility in the treatment of pulmonary tuberculosis. The only additional fact of interest in connection with this offer was a request from the manufacturers that the results "whether good, bad, or indifferent, be published."

Its administration was not compulsory and in all thirty-three (33) patients submitted to it. With two exceptions the cases were of the most favorable type, and all were classified as afebrile. Ten of these cases will not be reported, as in them the serum was discontinued within a day or two for reasons not attributable to it, the patients being discharged, etc. The remaining twenty-three (23) cases have been divided into four classes as follows: (1) Those in which the serum was discontinued on account of an apparently permanent rise of temperature produced; (2) those in which there was little or no change during the period of treatment; (3) those in which there was failure during the period of treatment; (4) those in which there was improvement during the period of treatment.

The case histories, which have been written as briefly as possible, will be detailed in accordance with this classification, a short summary being appended to each. The initial dose of 5 minims was increased at the rate of 5 minims a week until the maximum dose of 15 minims was attained. The plan of increasing the dose very gradually was adopted with the idea of mitigating, as far as possible, the very disagreeable reaction that occurs in the majority of cases at the end of the first five or six days. This reaction consists of a rise of temperature, malaise, headache, and various itching skin phenomena, urticaria, erythema, etc. But four so-called instantaneous reactions were observed during the experiments. These are most probably the result of the direct introduction of the serum into the circulation. They are extremely distressing, the principal phenomena manifested being flushing, a feeling of fulness in the head, itching, pain in the lumbar region and intense dyspnea. Fortunately they are very ephemeral, passing off in a few moments.

On April 4, 1901, the conclusion was reached that the serum was either harmful or entirely negative, and the experiments were all discontinued on this date, especially with the idea of observing the effect of its withdrawal. And, it may be added, in no case did the withdrawal have any effect whatever upon the subsequent course of the disease. In no instance has a request for its further use been received.

1. *Cases in which the serum was discontinued on account of an apparently permanent rise of temperature produced.* These cases were six in number, as follows:

Case I.—Admitted January 6, 1900. Aged thirty-nine. Family history negative. Disease subsequent to malaria during the campaign in Cuba. Not a tuberculous type. Tubercle bacilli present. Lesion consisted of infiltration of both apices. Patient was received in good condition, and remained so during the entire period of observation. On October 17, 1900, injections of serum were begun. At the end of a few days the patient exhibited marked rise of temperature at night, from 101° to 102° F. The evening fever continued until the injections were stopped on November 5, 1900. Following the withdrawal of the serum, the temperature resumed previous range, from subnormal to 99.6° F. Patient was discharged February 17, 1901, in a slightly better condition than upon admission, but with tubercle bacilli still present and pulmonary status practically unchanged. Prognosis favorable.

Conclusion.—The prompt drop in temperature following the withdrawal of the serum makes it very probable that the serum was the cause of the rise. The continued elevation of temperature was considered sufficient cause for discontinuing the treatment.

Case II.—Admitted July 10, 1900. Aged twenty-six. Family history negative. Not a tuberculous type. Disease secondary to typhoid fever. Admitted in bad condition with gross emaciation. Tubercle bacilli present; fever, etc. Lesion consisted of consolidation of the right apex, infiltration of the right lung anteriorly and left upper lobe. Following complete rest in the infirmary the temperature dropped below the febrile point, and simultaneously the general pulmonary condition began to improve. On October 17, 1900, injections of serum were begun and continued until October 24, 1900. Most aggravated erythema and urticaria associated with high

temperature (102° to 103° F.) followed the second injection, and as these symptoms continued without amelioration the serum was discontinued on the date mentioned. Several weeks passed before the evening temperature fell below the febrile point and the previous condition of affairs again obtained. Patient was discharged April 22, 1901, in very good general condition. The lesion had advanced in the upper lobes and cleared at the base. Prognosis favorable.

Conclusion.—Unquestionably the serum was accountable for the disagreeable symptoms produced, and on account of the apparently permanent rise of temperature, etc., its further use was not considered justifiable.

Case III.—Admitted August 7, 1900. Aged twenty-seven. Family history negative. Tuberculous type. Disease contracted while on duty on United States transport as nurse. Patient was received in fair condition and without fever. Tubercle bacilli present. Lesion consisted of consolidation of both apices, bordered by infiltration involving the remainder of both upper lobes. The general condition gradually improved until the injections of serum were begun on October 17, 1900. Urticaria and fever followed the second dose, and as the fever continued unabated the serum was discontinued one week later, and the disappearance of symptoms followed promptly upon its withdrawal. Patient at present is considerably improved. The lesion is free from signs of activity and consolidations have resolved. Prognosis favorable.

Conclusion.—The same reason, apparently permanent rise of temperature, which dictated the discontinuance of the treatment in the preceding cases held good also in this, though no permanent injury resulted, previous conditions being quickly re-established.

Case IV.—Admitted August 11, 1900. Aged thirty-one. Family history negative. Not a tuberculous type. Disease secondary to dysentery contracted in the Philippine Islands. Upon admission the patient was in good general condition and presented a small area of disease—infiltration of the right apex—which was, however, associated with great activity, enormous numbers of tubercle bacilli and a marked febrile tendency. He never did well, and on October 17, 1900, injections of serum were begun. As the temperature immediately became still further aggravated it was withdrawn five days later. Disease rapidly progressed, and patient was discharged with an unfavorable prognosis, being readmitted a few months later only to die in a short time of intestinal tuberculosis.

Conclusion.—Serum treatment was, of course, not indicated in this case. It was only used at the earnest solicitation of the patient, and the exacerbation of temperature caused was sufficient reason for its prompt withdrawal.

Case V.—Admitted September 3, 1900. Aged twenty-three. Family history positive. Disease followed a severe cold. Not a tuberculous type. Was received in good general condition. Afebrile. Tubercle bacilli present. Lesion consisted of slight infiltration of the right apex. Improvement began at once and continued until injections of serum were begun October 17, 1900. Within a day or two the temperature began to exhibit a constantly increasing tendency, and on this account it was withdrawn November 13, 1900. A day or two later the temperature resumed its former range, subnormal to 99.2° F. Patient was discharged improved with bacilli still present, January 5, 1901.

Conclusion.—The exacerbation of temperature was doubtless the result of the serum and dictated its prompt withdrawal.

Case VI.—Admitted October 2, 1900. Aged twenty-eight. Family history negative. Received in poor general condition. Tubercle bacilli present. Lesion was consolidation of the right apex and infiltration of the remainder of the right lung anteriorly and of left apex. In general the course of the disease has been progressive since admission, with occasional periods of fever. On October 17, 1900, injections of serum were begun and discontinued two weeks later on account of an apparently permanent rise of temperature produced. It was not until six weeks had passed that the temperature resumed its former range, below 100° F. at night. The patient is still under observation; the lesion has markedly increased, and the prognosis is unfavorable.

Conclusion.—The serum is of course not accountable for the steady retrogression in this case, it was withdrawn solely on account of the exacerbation of temperature produced.

2. *Cases in which there was little or no change during the period of treatment.* There were five cases in this class as follows:

Case VII.—Admitted February 5, 1900. Aged thirty-one. Family history negative. Not a tuberculous type. Disease resulted from exposure during the campaign in Porto Rico. Patient received in good condition. Lesion consisted of slight infiltration of both apices. Tubercle bacilli present. Afebrile. Injections of serum were begun October 17, 1900, and discontinued April 4, 1901, to observe effect of withdrawal. Shortly after the injections were commenced the temperature fell to normal, where it has remained since, the withdrawal of the serum on April 4, 1901, having no effect whatever. During the use of the serum the right apex consolidated and subsequently resolved. The pulmonary status is now practically what it was on admission, though the general condition is much better. Tubercle bacilli never disappeared. Patient is still under observation, and ultimate recovery is anticipated.

Conclusion.—As the treatment manifestly had no influence in preventing consolidation, it is not reasonable to attribute to it the subsequent resolution of the consolidated area. Both this and a fall in temperature to the normal are so frequently observed as the result of non-specific treatment that they must needs occur much more frequently than they do to be attributed to the action of the serum.

Case VIII.—Admitted May 14, 1900. Aged twenty-eight. Family history negative. Disease began insidiously at Jackson Barracks, New Orleans. At the time of admission initiatory symptoms had mostly disappeared, and it required the tuberculin test to substantiate the diagnosis of tuberculous infiltration of the right apex. Patient was apparently in perfect health. Following the tuberculin test the temperature became 99° F. at night. Bacilli, cough, and expectoration did not develop until November, 1900. On February 18, 1901, injections of serum were commenced. Within a few days the evening temperature became normal and a drowsiness in the late afternoon developed. Otherwise the status remained unchanged. April 4, 1901, the serum was withdrawn, with no effect whatever except the relief of the drowsiness mentioned. Bacilli are still present. Prognosis is good.

Conclusion.—In regard to the drop in temperature during treatment, the remarks which closed Case VII. seem equally as applicable to this. The negative effect of the withdrawal of the serum apparently substantiates this opinion.

Case IX.—Admitted June 26, 1900. Family history negative. Tuberculous type. Disease secondary to malaria contracted in Porto Rico. Though the lesion was comparatively insignificant, infiltration of right apex and posterior base, the general condition was very poor at the time of admission. Though classed as afebrile, there has always been a tendency to fever from slight causes. Tubercle bacilli constantly present. The general condition improved slightly, and October 17, 1900, injections of serum were commenced. Following a very severe instantaneous reaction January 14, 1901, patient refused further treatment. No objection was made, for latterly the weight had diminished and evening temperature was persistently over 100° F. Following the withdrawal of the treatment patient gradually improved and regained condition which existed previous to the beginning of the injections. Prognosis is not favorable.

Conclusion.—The effect of the serum in this case has been interpreted as negative; for, the history has been one of alternating slight improvement and retrogression, and it would not, of course, be reasonable to attribute to the serum what had already occurred several times without it in the same case.

Case X.—Admitted July 6, 1901. Aged thirty-six. Family history positive. Full-blooded negro. Not a tuberculous type. Disease secondary to malaria and dengue fever in the Philippine Islands. Patient was received in excellent condition. Afebrile. Bacilli present. The lesion was slight infiltration of both apices. There has been no change in condition since admission. Injections of serum were begun February 18, 1901, and continued until April 4, 1901, when they were discontinued to observe the effect of withdrawal. No apparent change resulted, and patient states that he does just as well if not better without it. Prognosis very good.

Conclusion.—Though the period of treatment was short it was entirely without effect.

Case XI.—Admitted January 21, 1901. Family history negative. Not a tuberculous type. Disease secondary to malaria contracted at Washington Barracks. When admitted patient was apparently in the best of health and has remained so. He was without fever. Bacilli present. The lesion was slight infiltration of the right apex. He received the serum from February 1, 1901, to April 4, 1901, when the treatment was discontinued to observe effect of withdrawal. Patient states that he never missed the serum in any way. Bacilli persist and condition has not changed appreciably. Prognosis very good.

Conclusion.—As in the previous case the result has been interpreted as negative.

3. *Cases in which disease progressed during the period of treatment.* There were six cases in this class as follows:

Case XII.—Admitted August 13, 1900. Aged twenty-five. Family history negative. Not a tuberculous type. Disease secondary to malaria and dysentery in the Philippine Islands. On admission general condition was poor. The lesion was active infiltration of the left lung and right apex. The case was afebrile, and bacilli were present. At first general and pulmonary condition rapidly improved. October 17, 1900, injections of serum were begun. During the period of treatment the patient slowly failed, losing in weight and the temperature exhibited a gradual, but constantly increasing tendency. On this account it was withdrawn January 1, 1901. Almost at once the temperature fell to normal and improvement again began and continued up to the time he was discharged at his own request April 3, 1901.

Conclusion.—The retrogression that commenced simultaneously with the use of the serum and which promptly ceased upon its withdrawal can have but one interpretation; viz., the serum proved injurious.

Case XIII.—Admitted November 14, 1899. Aged thirty-two. Mother died of pulmonary tuberculosis. Tuberculous type. Disease secondary to malaria contracted during the Cuban campaign. At the time patient came under observation general condition was poor and lesion consisted of infiltration of the right upper lobe and left apex. Bacilli present. Afebrile. From the first the patient rapidly improved, and within a short time the temperature became normal. He received injections of serum from March 25, 1900, to May 1, 1900. At the end of the first week a very severe reaction occurred. As long as the treatment continued the evening temperature never again became normal; on the contrary, it showed a constant tendency to increase. During the third week there also developed aggravated intestinal symptoms with severe pain an hour or two after eating, nausea, and anorexia. Weight also diminished. After the discontinuance of the injections, all these symptoms ceased, the temperature again became normal, and general progress towards health was resumed. The patient is still

under observation and has improved very much, though bacilli associated with physical signs of a slight infiltration of the right apex persist. Prognosis good.

Conclusion.—As in the previous case the retrogression which heralded the initiation of the treatment and the prompt disappearance of symptoms which followed its withdrawal can only be interrupted as a result of the treatment.

Case XIV.—Admitted March 3, 1900. Aged forty-three. Family history negative. Not a tuberculous type. Disease secondary to exposure in Alaska. When received patient was in fair condition and lesion was consolidation of both apices, with an old dry cavity posterior on left side. Case was afebrile. Bacilli present. The disease was apparently arrested at the time of admission, though the patient was about twelve pounds under weight. Shortly after admission improvement began, with disappearance of bacilli from the sputum, and was maintained up to the time patient began to receive the injections on October 17, 1900. Almost at once the temperature manifested a constantly increasing tendency (101.5° F. to 102° F.). There was also a great increase in cough and expectoration. Bacilli reappeared and became a constant feature of the sputum, and the lesion began to extend. The withdrawal of the serum on December 26, 1900, was followed by a cessation of symptoms. The temperature again became normal. Signs of activity over the lesions disappeared and patient improved, being discharged February 8, 1901, in somewhat better condition than on admission, though bacilli persisted.

Conclusion.—The treatment excited an apparently quiescent disease. The case is of unquestionable significance in the light of the fact that bacilli had been absent from the sputum for some time previous to the beginning the treatment.

Case XV.—Admitted March 1, 1900. Family history negative. Not a tuberculous type. Disease secondary to exposure while in the Philippine Islands. Patient in good condition when admitted. Afebrile. Bacilli present. Lesion was infiltration of both apices. The patient, who was one of the physicians on duty at this hospital, illustrated the type of the disease that is complicated by asthma. He received injections of serum from July 26, 1900, to September 26, 1900. During the treatment the evening temperature became 99.6° F.; weight diminished, and the patient did not feel so well. The treatment was discontinued at his request. The temperature returned to normal after the withdrawal of the serum, the weight improved: etc. He was discharged November 27, 1900, in somewhat better health, but with the lesion practically unchanged and bacilli still present. Prognosis favorable.

Conclusion.—The opinion of the patient in this case is entitled to consideration. He requested that the treatment be discontinued; for, he said, "Its effect was either negative or it caused the exacerbation of temperature."

Case XVI.—Admitted November 20, 1899, Aged twenty-four. Family history positive. Not a tuberculous type. Disease secondary to typhoid fever during the campaign in Porto Rico. Patient was in good condition and lesion consisted of infiltration of the right apex and base. Afebrile. Tubercle bacilli present. General health and pulmonary condition rapidly improved, and he remained in excellent condition until the fall of 1900, when he began to fail slightly. October 17, 1900, injections of serum were begun and continued until March 1, 1901. During the treatment the right apex consolidated and excavated. The left apex became actively infiltrated. As the treatment was manifestly without influence in preventing or controlling the extension of the lesion it was withdrawn on the date mentioned. Some time later the patient again began to improve, and at present the disease is apparently arrested and the general condition improving. The prognosis is favorable.

Conclusion.—Failure had begun previous to the initiation of the treatment and continued in spite of it. In consequence the effect in this case has been interpreted as negative.

Case XVII.—Admitted January 25, 1901. Aged twenty-two. Family history negative. Not a tuberculous type. Disease followed exposure in the Philippine Islands. When admitted was in good condition. Lesion consisted of infiltration of the right upper lobe. Afebrile. Tubercle bacilli present. He received injections of serum from February 18, 1901, until his discharge April 5, 1901. Previous to the beginning of treatment patient did not show any tendency to improve, on the contrary, he lost weight and the lesion progressed. During the period of treatment the right upper lobe consolidated.

Conclusion.—The effect of the serum was considered negative, as the patient exhibited a tendency toward retrogression before it was begun, as well as during the period of its administration.

4. *Cases in which there was an improvement during the treatment.* There were six cases in this class as follows:

Case XVIII.—Admitted May 31, 1900. Family history positive. Disease secondary to malaria in the Philippine Islands. Patient was received in good condition. The lesion was consolidation of the right apex and infiltration of the left. Afebrile. Tubercle bacilli present. In general it may be said that there has been a slow but constant improvement in this case, both in general and pulmonary condition. The serum treatment was begun October 17, 1900, and discontinued April 4, 1901. During the period of its use the improvement continued the same as previously, apparently being neither accelerated nor retarded by the treatment. Some time after the injections were begun the temperature fell to normal, where

it has remained since. Patient states that he is doing fully as well without the serum. Bacilli persist. Prognosis favorable.

Conclusion.—In view of the fact that the rate of improvement continued the same both before and during the period of treatment the result has been interpreted as negative.

Case XIX.—Admitted July 10, 1900. Aged thirty. Negro (half-blood). Family history unknown. Disease followed exposure in the Philippine Islands. At the time of admission was in very good condition considering an advanced stage of pulmonary and laryngeal disease. The lesion was consolidation of the right upper lobe with large dry cavity in this area. Vocal cords were ulcerated. Afebrile. Tubercle bacilli present. He improved from the first and just before injections of serum were begun on October 17, 1900, examination showed him to have regained his normal weight and to be in very good general condition. The ulcerations in the larynx had healed, though destruction of the cords had resulted in almost complete aphonia. The improvement in pulmonary condition was no less marked, the consolidated area had resolved, cavity healed and disease consisted of infiltration of right upper lobe and left apex. Treatment was discontinued November 6, 1900, at which time the patient was discharged at his own request. Condition at this time had not changed since previous examination.

Conclusion.—Though the period of treatment was very short the case has been included not only because it is of much interest apart from the subject of antiphthisic serum T. R., but also because the temptation to draw attention to another feature cannot be resisted. If the treatment with serum had been begun at the time of admission, the conclusion would have been almost inevitable that the serum influenced or achieved the remarkable result.

Case XX.—Admitted November 26, 1900. Aged thirty. Family history negative. Tuberculous type. Disease followed exposure in the Philippine Islands. On admission was in good condition. Lesion was infiltration of the right apex. Afebrile. Tubercle bacilli present. Improvement began at once and has continued to date. Injections of serum were commenced December 20, 1900. During February, 1901, cough and expectoration ceased and have since been absent. On March 1, 1901, the treatment was discontinued at the request of the patient as he had recently lost a few pounds in weight. At the present time, with the exception of the presence of signs of non-active infiltration of the right apex, and being a few pounds under weight, the patient is apparently well. He states that he has done fully as well without the serum.

Conclusion.—The result has been considered negative as the improvement anticipated the treatment and was maintained after its withdrawal. The cessation of cough and expectoration is frequently observed at this hospital in the absence of specific medication.

Case XXI.—Admitted October 11, 1900. Aged thirty-six. Family history negative. Not a tuberculous type. Disease began insidiously in the Philippine Islands when patient was much debilitated by the climate. Patient was received in very good general condition, and the lesion consisted of slight infiltration of the right apex. Afebrile. Tubercle bacilli present. Improvement and change in character of the sputum began at once and within a few days after the injections were begun, October 17, 1900, bacilli disappeared from the sputum, and have since been absent. The temperature, however, remained unchanged, averaging 99.2° F. at night. April 4, 1901, the treatment was discontinued to observe effect of withdrawal. Since the injections were stopped the status of the case has remained unchanged. Prognosis favorable.

Conclusion.—The result was considered negative for the same reason applied in the previous case.

Case XXII.—Admitted October 2, 1900. Aged twenty-seven. Family history positive. Not a tuberculous type. Disease followed exposure in the Philippine Islands. Patient was received in good condition. Lesion was slight infiltration of both apices. Afebrile. Tubercle bacilli present. Improvement began at once and continued up to the time of discharge, December 6, 1900. October 17, 1900, the injections were begun and continued as long as patient was under observation, at which time, though bacilli persisted, cough and expectoration had almost ceased. General condition was normal. Prognosis very favorable.

Conclusion.—The improvement was continued at the same rapid rate after the injections were begun as before, and, in consequence, the treatment was considered negative.

Case XXIII.—Admitted August 21, 1900. Aged twenty-one. Family history negative. Tuberculous type. Disease secondary to pleurisy in the Philippine Islands. Received in good condition with consolidation of the right apex and slight scattered infiltration of the remainder of the right lung anteriorly. Afebrile. Tubercle bacilli present. Improvement in general and pulmonary condition began shortly after admission, and has continued to date. October 17, 1900, the injections of serum were begun and continued until April 4, 1901. During the treatment the temperature, which had previously averaged slightly above normal at night, fell to normal and the bacilli disappeared from the sputum. The patient now enjoys very good health and is classed as convalescent, the withdrawal of the serum apparently not having influenced the subsequent course of the case in any way.

Conclusion.—The effect of the treatment was considered negative for the same reasons as in previous cases in this class.

Summary of Class 1. In this class the serum was discontinued on account of the apparently permanent rise of temperature produced. The elevation of temperature continued as long as the serum was used. In a disease in which one of the

first objects of treatment is maintainance of an approximately normal temperature, an agent which manifestly causes a rise cannot, of course, be tolerated. Seemingly, in this class, there was an idiosyncrasy against the serum.

Summary of Class 2. In these, in which little or no change occurred during the treatment, the action of the serum was negative. The cases illustrate that chronic type of pulmonary tuberculosis in which changes either for better or for worse are very slow and periods of improvement and retrogression are often encountered, but which are for the most part stationary. The treatment was obviously without effect.

Summary of Class 3. In at least three cases, viz., XII., XIII., and XIV., there is every reason to believe the serum to have been positively detrimental. In the cases mentioned the period of failure dates from the beginning of treatment and ceased with its withdrawal. In Case XV. it is at least probable that he serum caused the rise of temperature, and in the remaining two cases it was apparently negative.

Summary of Class 4. In the six patients composing this class, in which improvement occurred during the treatment, we are not inclined to attribute it to the action of the serum; for, taking the same number of equally favorable cases, the results obtained without any specific medication will be fully as good. This has been demonstrated at this hospital, as may be seen by reference to the Annual Report.

Every effort has been made to be perfectly fair in the recording of these experiments, and in submitting this report I feel that this has been accomplished.

As has been seen, the patients who received the treatment were, with few exceptions, all very favorable indeed, and excluding those in whom there is every reason to think the serum positively injurious, we see illustrated exactly what occurs during a limited period of non-specific treatment; viz., in a certain proportion of cases there is improvement, in others the condition remains stationary and in still others there is retrogression.

In my opinion the results obtained with this treatment are nearly comparable with those obtained without it, and for this reason I believe that those who have spoken favorably of this agent have unwittingly interpreted what occurs naturally as a result of proper hygenic surroundings in such a large proportion of tuberculous cases as the effect of this serum.

In using one therapeutic agent exclusively in the treatment of any self-limited disease, and pulmonary tuberculosis is often that, it is very easy to ascribe as the result of treatment what occurs naturally in a proper environment.

Hereditary Cerebellar Ataxia.—In the March number of the *Journ. of Nervous and Mental Disease*, H. T. Patrick gives a critical résumé of reported cases of this rare condition. He holds that there is no such disease entity and that what is so designated is a form of Friedreich's disease.

SIMPLE TRAUMATIC SYNOVITIS OF THE KNEE.[1]

BY WILLIAM S. THOMAS, M.D.,
OF NEW YORK;
SURGEON-IN-CHIEF, OUT-PATIENT DEPARTMENT, ST. LUKE'S HOSPITAL.

This common condition is so often either neglected or carelessly treated that I have felt justified in bringing it to your attention, although the subject may appear trivial beside the surgical topics of major interest which crowd medical literature to the exclusion of such humble, though practical, subjects as this. But time and the usefulness of patients, to say nothing of their comfort, are sacrified to perfunctory attention to these cases, which may drag along for months, now better, now worse, unless treated correctly, but, above all, thoroughly.

The term "simple traumatic synovitis of the knee" applies to a large class of cases following injury to the joint. It is chosen as a name because it refers to the cause of the condition present and excludes cases of bacterial origin and such complications as free bodies in the joint or loosened cartilages.

Among 150 patients treated in St. Luke's Hospital in the surgical clinic for the results of injuries to the knee, more than one-third (54) had simple traumatic synovitis. The records of these cases form the basis of this paper.

The typical case is met with in the young male. He limps in with extended knee, seldom using a cane, and tells of a wrench or bruise received several days or weeks before. The pain at the time of injury was severe, but not approaching the agony of a loosened semilunar cartilage or locked floating body. Since the accident he has had a varying amount of swelling about the knee and moderate disability, most noticeable on climbing stairs. On arising in the morning the stiffness and disability have been severe, but with moderate use the joint has limbered a little. It is this easing of the symptoms from time to time which has caused the patient to look upon his trouble as a slight sprain, soon to wear off; but the continuance of symptoms, with increase after the slightest knock or twist of the knee, has finally brought him to the doctor.

The joint is seen to be swollen with serous effusion, and is slightly tender on firm pressure everywhere, with perhaps one point especially so over the site of a bruised spot or stretched ligament. Full extension is possible, but flexion to a right angle is painful, and the limp is due more to the voluntary checking of flexion than to any pain of joint contact. The subjective symptoms may be of such moderate severity that the patient will demur when told that it will be necessary for him to wear a splint for many days and perhaps for weeks.

Pathology.—The changes in the course of a simple traumatic synovitis of the knee do not differ materially from those met with in other soft tissues. At first there is hyperemia followed by swelling and exudation of fluid both into the

[1] Read before the Medical Society of the Alumni of St. Luke's Hospital, Dec. 13, 1901.

membrane itself and into the articular cavity. The swelling is greatest about the loose folds in the ligamenta mucosa and alaria, which overlap the cartilages, their redness contrasting strongly with the pearly whiteness of the latter. Under the microscope there is seen to be much cell exudation into the perivascular spaces, with swelling and softening of the connective tissue by the extravasated fluid. The dilated capillaries occasionally give way and cause minute extravasations of blood to occur. The leucocytes escape into the substance of the membrane itself, and also penetrate between the endothelial cells and reach the articular cavity. The endothelial cells appear to multiply with unusual rapidity, and are cast off from the surface in considerable numbers.

In the earliest stages the synovial fluid is simply increased in quantity, but as the inflammation progresses the normal secretion is mingled with serum in varying proportions and afterward with fibrin and with red and white corpuscles. At first the fluid is clear, but later it becomes cloudy, opalescent or blood-stained. In cases in which the traumatism has been severe there are considerable extravasations of blood into the joint. This blood usually remains fluid owing to its admixture with the serum and synovia, as well as because of the smooth endothelial lining with which it is in contact. When the process undergoes resolution, the exudation ceases, the vascularity subsides, and the exuded fluid is absorbed. Extravasated blood delays resolution by its presence.

When the synovitis is not properly treated and drags along for months, there is little hyperemia, but a good deal of swelling and finally thickening from proliferation of fibrous tissue in the membrane. In these long-standing cases the fluid is clear and consists chiefly of serum, which may contain small shreds of fibrin or melon-seed bodies.

Etiology.—More than two-thirds of the cases were in males, their habits and occupations being of course to blame. Except at the extremes of life, age has apparently little to do with the liability to traumatic synovitis, since in this series of cases, at least, the number occurring in each decade of life was about the same. Children in arms are naturally less liable, and in the aged no doubt fractures of the lower extremity often result from injuries which might have caused but a traumatic synovitis in a younger person.

The violence which causes a simple effusion into the knee-joint is about twice as often direct as indirect, and it is surprising how mild are some of the cases in which the force has been great and what severe lesions may follow seemingly trivial injuries about the joint. In the excitement of a game or trolley-car accident, the initial traumatism to the knee may have passed unnoticed, while, again, it is common to see severe abrasions or ecchymoses about the knee without any effusion into the joint. In these cases the direction of the blow or the padding of soft parts has preserved the synovial membrane from injury.

The commonest form of indirect violence causing these effusions is a sprain about the internal aspect of the joint. These sprains are usually sustained by forcible abduction of the leg while the knee is partly flexed, or by outward rotation, both of which are checked by the internal lateral ligament. Sprains of the coronary ligament, especially the internal, may cause a general synovitis without being severe enough to allow a displacement of the semilunar cartilage. In cases of synovitis after a sprain, the tender spot over the stretched or torn fibers of a ligament may persist long after the effusion into the joint has disappeared.

Symptoms.—The subjective symptoms appear mild, as a rule, when the size of the knee-joint and its burdensome work are considered. As a matter of fact, the patients in this series of cases presented themselves for treatment on a average of eleven days after the beginning of symptoms, and then it was for the relief of disability rather than of pain that they applied, and oftener on account of the long continuance of symptoms than of their severity. The disability is noticed most when attempting to climb stairs and the stiffness and feeling of weakness become urgent when the patient attempts to walk more than a short distance. As for actual pain, the rule holds good which says: "Joint inflammations of bacterial origin cause pain which is increased with movement of the joint, while in traumatic forms the reverse is often the case. When the patient moves about the pain subsides, but it recurs on resuming movement after a considerable rest."

Tenderness on pressure over the synovial membrane everywhere, but emphasized over some point of contusion or sprain, is the rule, but has its exceptions. There is no noticeable tenderness, general or localized, in many of the milder cases. Here the point of sprain may be inaccessible to palpation. Extreme tenderness over the whole distended capsule is not found in simple traumatic synovitis, but occurs in the graver forms of bacterial origin. The greatest tenderness and the greatest pain in the simple cases occur when the amount of effusion is large and the joint capsule excessively distended.

Objective Symptoms.—Inspection shows the contour of the joint to be changed by the presence of the effusion into the capsule. The shape assumed is the same in knee-joint inflammations of whatever nature so long as the lesion is confined to a serous synovitis. The swelling is greatest in front, in the synovial pouches, which extend under the vasti muscles to a level of two inches or more above the patella on either side. There is also bulging of the mass of fat on either side of the patellar tendon. The patella itself is raised from the condyles by the fluid in the joint when the leg is extended, and the familiar symptom of floating is produced. Fluctuation of the joint is obtained when there is enough fluid pres-

ent to float the patella. But there may be so slight an excess of fluid as not to raise the patella unassisted and yet the presence of which it is important to determine for the sake of correct diagnosis and treatment. This is accomplished while the knee is extended by grasping the thigh just above the patella, so as to force down under the patella from the upper pouches whatever fluid may be contained in them, when the patella, struck over its center by the end of a finger, will be felt to knock against the condyles and produce the well-known patellar tap. J. P. Fiske (*Med. Rec.*, Vol. LIII., p. 376) describes a method, now much used, of determining the presence of small effusion into the knee-joint. The patient stands with extended knee, bending forward at the hips, with each hand resting on the anterior surface of the thigh at about its middle. The rectus femoris is thus relaxed and any fluid present settles behind the patella. The characteristic tap against the condyles of the femur is then obtained by a smart rap against the center of the patella. In the cases in which this procedure elicits the tap, the other side should be examined in the same way, for if there be enough fat below the patellar tendon to make it appear to float a little, the condition will be found to be symmetrical. In passing it may be well to say that both knees should always be examined, as there are several conditions causing symmetrical effusion into the joint.

Measurement of the circumference of the joint will show it to be one-quarter of an inch to two inches greater than that of the sound knee, according to the amount of effusion present. The measurement should be made at the lower and upper edges of each patella, for there is no little normal variation in the length of patellar tendons. When the tendon is unusually long, the effusion will raise the lower margin and give a greater increase here than above. Measurement of the circumference is a comparatively rough test, but is used from time to time to determine the increase or decrease in the amount of effusion. The color of the skin remains unchanged in these cases, even when the swelling is considerable.

The true involuntary spasm occurring in tuberculous disease is absent, and the joint may be fully extended without pain. Indeed, many of these patients naturally keep their leg in a position of full extension and I have never seen one of them carrying his knee flexed beyond twenty degrees. At any rate, it is very rarely that the fully-extended position gives discomfort. Flexion beyond a right angle is seldom permitted, even in cases with but a small effusion, and when the joint capsule is much distended flexion may be limited to a few degrees.

Passive motions may be carried further than active motions, if the examiner is gentle and has the patient's confidence, because of the disturbance which active motion causes in the joint by reason of the intimate connection of the neighboring tendons with the capsule.

We are constantly informed that the position of greatest ease to any inflamed joint is one of more or less flexion, but I believe that in the case of the knee-joint this statement is misleading, and that it is true only in such cases, for example, as tuberculous arthritis, in which there is spasm of the muscles of thigh and leg, or a mechanical derangement to interfere with full extension. If this be true, its practical bearing upon the treatment will be seen to be important. Atrophy of thigh and calf from disuse of the muscles is usually present after the first two weeks, but is never prominent. The body temperature is normal.

Course.—The average duration is about five weeks under immobilization in a well-marked case. Without treatment the course is much more protracted, and even after apparent cure many cases tend to recur persistently without being really chronic. This tendency to recurrence is a strong incentive to careful attention and intelligent treatment. There is usually a mechanical reason over and above further traumatisms, for repeated attacks. Sometimes lax ligaments may be to blame; again a more or less permanently stretched capsule, with poor support from weakened muscles, may be the underlying condition. The usual course seems to be shorter in children under twelve and longest in men who refuse or neglect treatment. Twelve days is a short time for a simple traumatic synovitis of the knee to last, but six months is not an unusually long time. The tendency to the formation of adhesions seems to be much less than is the case in some other joints,—notably the shoulder.

Diagnosis.—After having ruled out the presence of a misplaced semilunar cartilage by the history and by palpation along the edge of the articular surface of the tibia, the remaining conditions to be excluded in making a diagnosis of simple traumatic synovitis of the knee are as follows: Tuberculosis, rheumatism, gonococcic infection, syphilis, hematoma, "quiet effusion" of Bennett, hysterical joint.

There can be no doubt that some cases of tuberculous arthritis of the knee begin as a simple traumatic synovitism, but just when the invasion by the bacilli commences it is hard to determine. When true spasm intervenes, soon followed by increased atrophy of thigh and calf, with heat about the joint and afternoon pyrexia, the diagnosis will be clear. Morphological and biological examination of the effusion in obscure cases, or even the tuberculin test, may be called for.

In acute rheumatism there are fever, local redness and great tenderness, with a rheumatic history and probably involvement of other joints. In the chronic forms of rheumatism there are apt to be more ankylosis with changes in structures other than the synovial membrane and a rheumatic history together with the age of the patient to guide one. Joint crepitus is common in these cases. In a patient of the rheumatic diathesis a long-continued traumatic synovitis of the knee may give more trouble in damp weather and call for antirheumatic treatment.

The absence of urethritis will exclude the presence of a gonorrheal synovitis, but what is apparently a simple traumatic case occurring in a patient with specific urethritis should be treated as though it were of the more serious nature, and its course will soon demonstrate its true character.

The syphilitic knee of the secondary stage will be less apt to confuse one than the synovitis with effusion occurring in congenital syphilis as seen in children; but here the condition is regularly symmetrical and there will probably be a specific history.

Hematoma of the knee-joint follows a more severe grade of injuries than those usually the cause of simple synovitis. In large hemorrhages there will be clotting and a boggy feel, instead of the clear fluctuation, and in two or three days ecchymoses will appear in the skin. The hysterical joint, of course, shows no effusion. W. H. Bennett, in the London *Lancet*, describes a condition which I have never recognized. It is a "quiet effusion into the knee-joints occurring in women and young girls" which is always bilateral and is seen at puberty or at the menopause or in connection with menstrual difficulty. I have never seen so-called idiopathic synovitis of the knee occurring after exposure to cold and wet, though described by many writers, among them Billroth.

Treatment.—The remedial measures are mainly mechanical. Rest, complete or partial, counts for more than do all other means combined, but it is often discontinued too soon. In these cases of simple traumatic synovitis of the knee it is certain that unless the symptoms are unusually severe, little is to be gained by *absolute* rest. When the patient can earn his living with the joint immobilized he should be allowed to walk about while wearing the customary splint. A plaster splint encasing the leg and thigh from ankle to perineum is all that is required in the way of apparatus. Rest in bed or extension is not needed; and for this reason the contact of the condyles with the head of the tibia as in standing, or their impact while walking, is not the factor which keeps up the synovitis. We have seen that it is the ligamenta alaria and mucosa and their folds which are the parts most inflamed, and not the articular surfaces of the bones. Moreover, the patient will not show pain if the bottom of the heel is smartly struck, or if he steps heavily upon his heel while the knee is extended. The rest employed as treatment need apply only to flexion and rotation, for it is clearly these motions that stretch or subject to strain those structures which were injured during the initial traumatism, and which should now be at rest.

If properly applied, the plaster splint may be worn for three or four weeks: it is then removed and the joint examined, and, if necessary, the old cast may be reapplied or a new one substituted. It is idle to temporize with these cases of traumatic synovitis of the knee; they must be immobilized so long as there is any excess of fluid in the joint or a continuing point of distinct tenderness about the ligaments; to discontinue immobilization too soon commonly results in a fresh recurrence of symptoms, or at best a protracted course of those already present.

The reason for putting up the leg in a position of full extension is obvious; besides removing strain from the structures about the front of the joint, it allows the bodily weight to be supported upon a column as nearly upright as possible, and prevents jamming of the patella against the confining splint. It is unwise to leave a fenestrum in the splint to allow occasional examination, because the pressure is then unequally distributed over the joint. It will also interfere with resolution and, at best, allow but unsatisfactory methods of examination.

If the patient be seen within the first twenty-four hours, massage may be employed gently over the joint itself, but more vigorously to the thigh above to promote and clear the way for absorption of the effusion. It is also decidedly grateful to the patient. During the stage of active inflammation there must be rest; later, when the active symptoms are subsiding or when of more than six weeks' duration, with effusion still present in a flabby capsule, massage without motion of the joint hastens absorption. It is at this stage that tight strapping and counterirritation are of real service, but they must be continued for some time —a week at least. As for rest in bed, wet dressings, cold applications, etc., during the first few hours after injury, they are of course demanded if the pain, redness and swelling be severe, but such cases are usually accompanied by more serious lesions than the sprains or contusions resulting in simple synovitis. Aspiration is required only in rare cases of excessive distention and tenderness, and should be done aseptically and be followed by firm strapping and bandaging.

There seems to be no royal road to recovery, but, provided the case be uncomplicated, there is a sure road and that road is rest.

THE THERAPEUTICS OF CUTANEOUS DISEASES.

BY ALBERT E. CARRIER, M.D.,

OF DETROIT, MICH.;

PROFESSOR OF DERMATOLOGY AND CLINICAL MEDICINE IN THE DETROIT COLLEGE OF MEDICINE.

I believe that affections of the skin are much overtreated, and that many of them would recover more quickly if a close attention were paid to hygiene, diet, and the patient's habits, without medicines, the application or administration of which, without attention to these points, often works disaster. The manufacturer is daily putting out preparations that, according to the easily-acquired testimonials, are cures for the various dermatoses. The makers of patent medicines preach daily through the public press that they have found a certain cure for all skin diseases. The preparation is usually a lotion or an ointment. This has educated the laity up to the idea that skin diseases are purely local, while the legitimate pharmaceutical preparations for local

medication have had a similar influence upon the medical profession.

The diseased skin cannot be studied as a structure independent of the other organs of the body any more than you can study pathological conditions of the heart, brain, or kidney, without taking into account the inter-relations of the different organs to each other; each is only a part of the whole and each is influenced for good or for ill by the condition of the others. Drug administration or application plays an important part in the treatment of general diseases and medication is just as important in dermatological affections. We should be optimistic regarding the results to be obtained from the use of medicines, having an abiding faith in the drugs that we use, but let that faith be based on the actual knowledge of the action of the drug we are using, and not on mere hearsay, and then, the actual condition being understood, the therapy will be correct.

Here I want to call attention to a familiar fact, but one that is often overlooked, and that is the idiosyncrasy existing in certain individuals whereby the ingestion or application of drugs is followed by a decided effect upon the cutaneous structures which is unusual and may be called an untoward effect. These skin manifestations do not seem to be dependent upon the amount of the drug used. A few drugs that are in common use are in some individuals followed by eruptions of the skin. Quinine is one of the most frequently prescribed drugs in the Materia Medica; a single dose of one-eighth of a grain of this drug in an adult has been followed by an erythema attended by a severe pruritus, lasting for several days and finally ending in desquamation. J. C. White and Stellwagen mention cases in which the single application of a hair-wash which contained quinine was followed by an erythematous rash ending in desquamation. Arsenic is a remedy of very frequent use by the general practitioner in the treatment of cutaneous diseases; this drug is at times followed by papular, vesicular, erythematous, or bullous eruptions, by a pigmentation, or a hyperkeratosis of the palms and soles. An eruption of zoster occurring during the administration of arsenic is very likely due to the drug. Arnica, so commonly used by the laity, is frequently followed by an erythematous or pustular eruption. Chloral, iodine, mercury, copaiba, opium, tar, etc., are at times followed by severe inflammatory conditions of the skin. These effects are always to be borne in mind when treating cutaneous disorders or we may fall into the error of supposing them manifestations of the disease we are treating. A patient with this idiosyncrasy regarding quinine or belladonna and suffering from some cutaneous disease with erythematous manifestations would be improperly treated if these drugs were used. I think that it is not an uncommon occurrence to have syphilitics who are suffering from a drug eruption the result of previous medication come to us for treatment. A continuance of the same line of treatment in these cases would lead to disaster. These untoward effects of ingested drugs illustrate the intimate relation that exists between the digestive tract and the skin.

Because diseases of the skin appeal so strongly to vision and we are able to see the various changes that the different pathological processes undergo, we are apt to lose sight of the fact that the skin is a two-sided organ, that we are observing the changes that are occurring on one side only, and that the other side is the one that will very often deserve the most attention if we are to manage the disease successfully. Anatomically, we may study the skin as a separate structure, but when we come to consider its physiology we find that it is most intimately connected with the entire system, and through the medium of its rich vascular and nervous supply it must respond to pathological conditions of internal organs, and, when itself the seat of a pathological process occupying any considerable portion of its surface, it must also affect internal organs.

Physicians devoting their time to dermatological practice are often asked questions like the following: What shall I do for an eczema of the legs? or, What will cure acne? or, What is the best medicine to use for psoriasis? Such questions are evidences that the inquirer has failed to recognize the fact that the skin has two sides and has confined his investigations to the outside only; or, in other words, he has regarded the process as purely local and the name as always referring to the same condition. Now, there is an eczema and there are other eczemas; there is an acne and there are other acnes; no two cases are alike, nor is a cutaneous affection the same during its whole course. An eczema may be acute, or it may be subacute, or it may be chronic; it is an eczema always, but not the same eczema, and the different varieties require a different medication. Skin diseases are not simply local affections and there are times when, to treat them understandingly, it may be necessary to call in the aid of the thermometer, or the stethoscope, or a urinary analysis.

It is a little strange that, given an organ in which it is so easy to study pathological conditions, where we have the aid of vision, denied us when studying these same conditions in internal organs, diseases of the skin are so little understood. It is an old saying that "familiarity breeds contempt" and I presume that seeing is the familiarity in the case of cutaneous disorders. Many diseases of the skin have their origin in external irritants, during their whole course are purely local in character (this is to be expected on account of the skin occupying a position so exposed to injuries, temperature changes, attacks of parasites, etc.), and are usually speedily cured on removal of the irritant; at other times, however, the simple dermatitis may end in an eczema, requiring in addition to a different local treatment constitutional medication, and the

knowing of when this change occurs is the important factor.

There is no specific medication for diseases of the skin if we except the syphilides, and even syphilitics are at times much benefited by omitting all specific medication and directing the treatment as though the patients were suffering from some disease other than lues. Cutaneous affections should be cured as speedily as possible. We have gotten over the idea that eruptions of the skin must be handled with care for fear of causing them to disappear too rapidly and transferring the process to some internal organ. The quicker we get rid of skin lesions the better, for, as already stated, local irritations long continued may result in disturbance of some internal organ, and eruptions of the skin are local irritants just the same when occurring as a result and in the course of a special disease. Bearing in mind the tissue of the skin and its structure, its diseases are to be treated just the same as those of any other organ with the same pathological condition.

Inflammations of the skin are acute, subacute, or chronic. Redness, heat, swelling, and pain are the same whether occurring in an acute dermatitis or an acute eczema, and it is the condition that calls for treatment; the acute process calls for one medication, the subacute for another, and the chronic for still another, no matter in what disease the conditions may occur, and this is especially true of local therapy. Because the lesions in many cutaneous disorders are very small, though the eruption may have a large distribution, we are apt to lose sight of the fact that it is the process occurring in the individual lesion that we are to comprehend. How does it develop? What is its course? How is it resolved? A knowledge of these conditions enables us to direct a therapy which at one stage may be necessary to aid the process, while at another it must be combated.

Dermatological affections may be divided into three classes:

1. Those that are self-limited, usually running a definite course, attended by mild or severe subjective symptoms, and ending in recovery. Cases in this class are usually acute and require little in the way of treatment other than relief of the distressing symptoms. Active treatment in these cases may do much harm, and it is diseases of this class that are so often overtreated.

2. Those that are benign in character but incurable and those that are fatal in spite of all medication; the malignant growths, if operable, will come under the care of the surgeon; if otherwise, our efforts will be directed to the relief of distressing symptoms.

3. All other cutaneous diseases will come under this class, and it is here that we find our opportunity to cure. It is in this division that occur cases calling for active, and thorough medication with a prospect of good results; it is here that occur cases that we are able to control and these cut short the disease, which may last indefinitely if not treated; and it is here, too, that cases are apt to become inveterate from inappropriate treatment.

Naturally enough, when undertaking the care of a skin disease, the question will arise as to whether it will require internal medication, or whether local treatment will be all that is necessary, or whether a combination of both methods will give best results. From the exposed situation of the skin it is liable to injuries from occupations, from the ravages of parasites, from temperature changes, etc., resulting in a purely local affection, and in these cases removal of the irritant and a local therapy will be all that is required if the patient is up to the normal standard of health; but scabies, ringworm, or a simple dermatitis in children with defective assimilation or elimination may refuse to yield to the ordinary medication until these defects are removed.

In caring for cutaneous diseases of infancy and early childhood, the first inquiries should be regarding the ordinary every-day care of the skin. I am positive that many of the cases of eczema at this time of life are the result of the lack of proper care. A baby ushered into the world from the most bland surroundings is placed in the care of some one to be washed and dressed, a process that usually results in a highly-colored, rosy integument, which is exhibited as an evidence of perfect health, and when later on, and probably as a result of this cleaning process, the skin rebels and becomes diseased, the cause is overlooked and the internal organs are interrogated for the source of irritation. The epidermis of a young child is easily removed, and the rubbing to promote a healthy color deprives the skin of its natural protection. Washing for cleanliness is essential to the health of the skin, but anything beyond that is harmful. The skin of an infant, or young child must be treated with profound respect. In children a little beyond the age of infancy overeating is a fruitful source of cutaneous diseases; often this overfeeding is not attended with symptoms that call attention to the gastric apparatus, but in all the skin affections of early childhood the amount and kind of food that the patient is taking must be looked after and regulated by the medical attendant, and he should also specify the hours of feeding. Attention to the regulation of diet and hygiene will often overcome a disease that has resisted a thorough course of medication, both internal and external.

If attention to diet and hygiene be necessary in children, it is equally necessary in adults. It is a matter of surprise in questioning patients to find the amount and kind of stuff the average individual puts into the stomach daily. Young women will tell of eating a pound of candy every day and exhibit surprise when told that it must be stopped; add to this several glasses of soda water, and late suppers, etc., and it is little wonder that a skin disease results, even if there be no gastric symptoms severe enough to attract attention. Sweets are bad for some cutaneous affections, and hot soups and late suppers are

worse. A correction of habits is necessary if we are to treat successfully skin diseases. A matter that impresses me more each day is that it is necessary that we see our patients often. Pathological processes of the skin change their character often and a therapy for to-day may be improper to-morrow. It is hard to convince patients that they are sick when they are able to attend to their ordinary vocations, but better results will follow if we are able to do it.

An increasing experience in the treatment of cutaneous diseases leads me to the conclusion that among a large proportion of general practitioners the opinion prevails that there is a specific medication for skin diseases, for I find that generally the cases that are referred to me have been treated by arsenic, mercury, or iodide of potash. All these are valuable drugs in properly-selected cases, but capable of doing immense harm when used indiscriminately. It would be far better to leave them entirely alone until all other resources have been exhausted. A correct diagnosis is essential in treating skin diseases. I am positive that mercury and the iodides are often given when an incorrect diagnosis has been made simply from the skin lesion, which in a number of diseases may look like a syphilide.

Regarding general treatment I have little to say. The practitioner is familiar with all conditions of ill health and perfectly competent to direct a therapy for their removal. I want to call attention to a few of the drugs that are in such common use in the treatment of cutaneous diseases. If reliable statistics could be obtained of cutaneous diseases treated by arsenic alone, and benefited, or cured, and of those in which its use had been followed by no benefit or untoward effects, we would find that the latter would far outnumber the former. I am positive that more harm than good follows the use of arsenic in skin diseases. There are only a few cutaneous disorders in which the drug may be used with a fair prospect of doing good, and even in these not all the conditions are suitable for its administration. It had better not be used at all than used indiscriminately. The action of arsenic seems to be upon the epidermal structures; whether by its influence upon the nervous system or as a direct irritant is a question, but from the known benefit that follows its use in neurotic cases of eczema, pemphigus, etc., I am inclined to the opinion that the former is the correct theory. Arsenic is never to be given when there is an acute inflammation of the skin. In chronic affections characterized by epidermal exfoliation it finds its sphere of usefulness. In psoriasis, squamous eczema, lichen planus, pemphigus, it may be used with a reasonable expectation of benefit resulting, but even in these diseases it is better to try other remedies first, and then, if arsenic is decided upon, it must be used thoroughly, as the action of the drug is slow and it should be given for a long time in order to accomplish a cure. Failures from its use may often be attributed to an impure preparation, a fact that should be remembered.

The alkalies are an exceedingly valuable class of remedies in cutaneous disorders and are indicated whenever there is a congestion of active character. In acute eczema, in the acute stage of psoriasis, in the various erythemata, and in skin diseases occurring in gouty or rheumatic individuals, this class of remedies will be found of great value.

Antimony deserves more consideration as a remedy in cutaneous disorders than it is getting. I know of no remedy that gives as good results in the dermatoses occurring in the robust individual with the florid complexion, the hearty eater, whose diet is largely meat, as antimony. It relieves the congested skin and assists in eliminating the waste products through the alimentary canal and kidneys. Try antimony instead of arsenic.

Mercury, of course, finds its greatest value in the syphilides, but it is also very useful in those affections that are characterized by induration of the tissues, such as we find in old cases of eczema. A short course of mercury will act very kindly in causing absorption of the exudate. In small doses in the eczemas of children, and especially those that are pustular in character, in an active psoriasis, particularly if occurring in those of full habit and florid complexion, in the cutaneous disorders of the gouty and wherever there is defective elimination, in the various erythemata, in rosacea, etc., it is of great value.

The salicylates find a sphere of action in cutaneous disorders that are characterized by congestions and in those of a rheumatic or gouty character. In those cases of urticaria that are not dependent upon some disturbance of the digestive apparatus it seems almost a specific. Ichthyol, one of the newer remedies, is of value in the various vasomotor disturbances and in cases of acne occurring in the plethoric, also in urticaria and in rosacea.

Calcium sulphide in some cases seems to interfere with pus formation, while in others it seems to hasten the process in pustular lesions that are slow in resolving, and is useful in many of the acnes, furunculosis, etc. I have had better results from small doses often repeated than from the large doses. It is necessary that the drug be pure and it should be given in gelatin-coated pill.

The iodides are useful in assisting the elimination of waste products, such as are found in old cases of psoriasis, in indurated acne, etc. They are also valuable in cases of furunculosis, when there are many lesions and distributed pretty well over the body, in the slow-developing lesions of tuberculosis of the skin that used to be known as evidences of scrofula. Its action in the later manifestations of syphilis need only to be mentioned. Untoward effects sometimes follow its use and they must be watched for and avoided. The roborants, such as cod-liver oil, the various preparations of malt, etc., will occur to all.

The newer preparations in the management of cutaneous disorders are most of them being used

tentatively; we are not positive that they are better than the drugs that we are perfectly familiar with, and they had better be avoided until their usefulness has been positively demonstrated. With the careful use of the drugs that I have mentioned most of the cases of skin disease that come under the care of the general practitioner can be successfully managed in so far as internal medication may be necessary.

In the field of local therapy in skin diseases lies the opportunity of brilliant cures, or miserable failures, depending upon whether we are or are not familiar with (1) the pathological condition existing and the efforts that Nature is making to overcome this, and (2) an accurate knowledge of the effects of medicines when applied to healthy or to diseased skin. A knowledge of these two requisites enables us to select a remedy that will combat the pathological process and at the same time aid Nature in her efforts at repair.

Time will not permit me to call attention to the various local applications that are found useful in the management of skin diseases; I will simply make a few suggestions concerning the principles of local therapy.

1. The removal of all sources of irritation to the skin. Inquiries may show that the occupation of the patient, the methods and material used for the purpose of keeping the skin clean, or the clothing that is worn may be the means of lighting up a skin affection, or of continuing it when occurring from some other cause.

2. Absolute cleanliness. This means rendering the skin aseptic. The removal of all disease products from skin lesions lessens the liability to secondary germ infection, while their decomposition furnishes an added irritant. A process of cleaning should be accomplished with the blandest of material, and the utmost gentleness to avoid irritation.

3. The relief of distressing subjective symptoms of pruritus, smarting, or pain. An infant suffering from an eczema will do more harm in a minute by its efforts to relieve the itching by scratching than we may be able to overcome by a week of appropriate treatment.

4. The selection of the proper vehicle for the incorporation of the drug we are to use and a proper preparation of the application. Ointments and powders require the exercise of brain and muscle, if they are properly prepared, and a limited experience with pharmacists will convince any one that there is a great difference among them regarding the way in which these applications should be prepared. Success or failure in local treatment will largely depend upon properly-compounded applications, and the writing of a prescription does not end our duty to the patient.

5. The proper application of the remedy. A fact that should always be remembered is that the intermittent application of even soothing remedies will have an irritant action upon the lesions, and hence the ordering of an ointment of oxide of zinc for an eczema, in which it is indicated to be applied morning and night, would be improper, for, if the remedy is indicated, the application must be in constant apposition to the part as long as the indication lasts. I think that this is a matter of much importance.

With attention to the few suggestions made, the general practitioner is just as competent to manage cutaneous affections as the specialist, barring, of course, the greater experience the latter has from his larger clientèle.

100 Miami Avenue.

MEDICAL PROGRESS.

THERAPEUTICS.

Treatment of Hemorrhoids by Electricity.—The advantages of treatment in these affections by electrical currents of high frequency and tension are set forth by R. Pisani (Annali di Elet. Med. e Ter. Fis., Feb., 1902). After reviewing the experiences of other clinicians, the author gives the details of a case so treated in his personal practice, the favorable results coinciding with the apparently invariable success reported from the use of this method. The electrical current was applied daily to the diseased site for from five to eight minutes, the intensity of the current being from two to four amperes. The patient experienced no discomfort from the passage of the current, a sensation of slight warmth at the anal orifice being the only noticeable effect. Abolition of spasm of the sphincter was obtained in a few days, permitting the easy passage of the electrode; sphincteralgia diminished markedly after the first applications and disappeared entirely at the end of ten days; internal and external hemorrhoids, which were numerous and voluminous, gradually became less painful, and they, too, were entirely obliterated after ten treatments. The patient's general health improved steadily during the local treatment, and there has been no recurrence of trouble during the five months he has been under observation.

Atropine in the Treatment of Ileus.—It has been observed when pursuing this method of combating certain forms of intestinal obstruction that small and continued doses given for several days almost invariably produced toxic symptoms, whereas the majority of patients who had given large doses rarely showed any such effects. An explanation of this phenomenon is proposed by A. Weber (Deut. med. Woch., Feb. 6, 1902). Atropine is known to be antagonistic to morphine and, as almost all cases of ileus are treated in the early stages with opiates, the small hypodermic doses of atropine are readily neutralized and have no effect on the intestinal spasm. A larger dose (0.005 gm.) does not call forth toxic symptoms, as only the part which is not neutralized comes into effective action. The author believes that a knowledge of this antagonism affords also a means of controlling the effects of atropine administration. He finds from the experience of his own and other cases that atropine can be used in all forms of ileus, as even in the surgical cases the drug lessens the pain and induces bowel movements after the operation. The intestinal obstruction following laparotomy or herniotomy, unless due to volvulus or incarceration, should be treated with atropine in preference to opium. The fecal accumulations in large scrotal herniæ of old people are often relieved. As for the dose, if the patient be under the influence of opiates, a hypodermic of 0.005 gram ($^1/_{40}$ gr.) can be given and repeated in twelve hours. If very little or no opium

have been given in twenty-four hours, only 0.002 grams (1/100 gr.) should be injected, followed in twelve hours if necessary by the larger dose. If no gas be passed in twenty-four hours after the first administration, laparotomy is indicated.

Frost-Bite and Peroxid of Hydrogen.—Chilblains are a common and troublesome affection the world over, and the many methods of treatment prove that none is absolutely reliable in all cases. J. Courtin (La Sem. Méd., 1902, No. 5) has been using peroxid of hydrogen in treating this condition whether with or without ulcers. He immerses the affected parts for half an hour every day. For small children he employs the pure product reduced to two or three times its volume by the addition of warm boiled water. For children over three years of age and for adults he uses a half-strength solution. If there be ulcers this author adds to the peroxid of hydrogen a saturated solution of borate of soda in order to decrease the acidity of the liquid and the amount of pain which it produces. He states that the results he obtains are prompt and satisfactory.

Treatment of Lobar Pneumonia.—The discovery of the specific cause of pneumonia aroused hopes that in the near future a specific cure might be found. The serum treatment has been advocated by many as fulfilling this indication, but experience has shown that it has little if any effect. Pneumonia, perhaps more than any other disease, must be treated according to the particular symptoms which arise, says C. E. Nammack (N. Y. Med. Jour., Feb. 15, 1902), and hence the physician must be able to study and appreciate the individual case. So far as drugs are concerned he pins his faith in nearly all cases upon four: Strychnine, whisky, nitroglycerin and oxygen. The strychnine and nitroglycerin are given in moderate and frequently-repeated doses combined with a dram of the wine of pepsin. Whisky is well borne and can usually be given in large doses. It has the disadvantage of causing relaxation of the peripheral vessels, but this action can be overcome by the use of strychnine. The benefit from oxygen may be problematical, but it certainly gives the patient relief and frequently renewed courage. Creosote has been highly extolled by some observers and, although undoubtedly of value in many cases, its specific action is doubted. The rectal and subcutaneous injections of a saline solution are more rational and are especially indicated when the kidneys and bowels are deficient in action. Before the subcutaneous or intravenous injection of fluids, a preliminary venesection should always be done to avoid any considerable increase in the body fluids. A temperature below 104° F. seldom needs any treatment, but above that point cold or tepid baths act well as antipyretics and as cardiac stimulants by increasing the tone of the peripheral vessels. The chief cause of death is degeneration of the myocardium, due to toxemia and the amount of lung involved.

Practical Pharmacy.—The lack of instruction in pharmacy not only hampers the physician in the art of prescribing, but frequently leads him into making mistakes which may seriously change the action of the drugs. E. T. Hargrave (N. Y. Med. Jour., Feb. 22, 1902) has suggested several rather frequent combinations which the pharmacist is called upon to make and in which the desired results cannot be obtained. Quinine is sometimes made soluble for administration by the addition of dilute sulphuric acid and then glycyrrhiza is added to disguise the taste. Unfortunately, the sweet principle of licorice is precipitated by an acid and the mixture is made much more bitter. An excellent way of administering chloral is by adding syrup acaciæ, U. S. P., ℥ss., and tinct. cardamom. comp., ♏. x., to each dose. An emulsion of turpentine for internal use may be made as follows: Place the finely-powdered acacia in a perfectly dry bottle in the proportion of twenty grains to the ounce of oil; add the entire quantity of oil and shake vigorously. Then add half an ounce of water and shake till globules of oil cease to be seen on the sides of the bottle. Add gradually the remaining water, shaking well after each addition.

Treatment of Erysipelas.—The results following the application of an old remedy, continuous warmth, to erysipelatous areas have been found excellent by M. Jerusalem (Klin. therap. Woch., Feb. 16, 1902). The infiltration and reddening begin to disappear in from one to three days, and, though the temperature may persist, the pain is relieved rapidly. Abscesses are said to complicate erysipelas of the extremities in 64 per cent. of the cases; however, not one single instance was observed in 25 cases treated with heat. The best way to apply this heat is by means of a thermophor. The author's experience with antistreptococcic serum has been very disappointing.

Therapy of Auto-intoxication.—Intestinal lavage has during the last few years been strongly urged, especially by Boas, as only second in importance to purgation in the treatment of this condition. Many observers even affirm that no permanent value can be obtained by the administration of antiseptic drugs alone. While recognizing the benefits to be derived from colon irrigations, B. Robinson (Med. Rec., Feb. 15, 1902) believes that too little attention is paid to certain intestinal antiseptics which assist in preventing fermentative changes and still are not strong enough to derange the normal digestive functions. The argument which has been used against such drugs has been that whatever inhibitory action may be exercised by them over the development of certain bacteria, this inhibition is exercised even more strongly over the healthful action of the viscera affected. Three drugs have proven very satisfactory in the hands of the author in meeting the indications in such cases; first, creosote in small doses combined with the elixir of pepsin; second, wood charcoal; and third, the subnitrate of bismuth. In certain cases, dilute phosphoric acid has proven more valuable, especially when the nerve tone is lowered. The electric baths, abdominal massage and static electricity are useful in many cases, especially when combined with purgation and intestinal lavage. The malnutrition which results in such patients leads frequently to gastroptosis, enteroptosis, displaced liver, kidneys, etc., which often come under the surgeon's knife. The author suggests that if these cases could be followed for a few years, the percentage of cures after operation would be extremely small and he, therefore, seldom recommends surgical interference.

Treatment of Eclampsia by the Method of Stroganoff.—Stroganoff's method of treatment is designed to accomplish the following results: (1) Prevention of the convulsions by lessening the irritability of the nervous system and by removing all external sources of irritation, especially those connected with the birth canal. (2) Strengthening of the vital processes by careful supervision of the cardiac and pulmonary circulations, by securing as large a quantity of oxygen as possible, and by prompt delivery, if, with these measures and a proper diet, the convulsions do not cease. The treatment is in brief as follows: The administration of oxygen during the convulsions; the use of morphine and chloral to control the convulsions; the free use of cardiac stimulants when the heart weakens; a milk diet; avoidance of all methods of treatment which tend to depress the patient. The use of normal salt solution is advised as the most satisfactory method of stimulation, although brandy and sulphuric ether may be used for sudden emergencies.

Stroganoff believes that the single dose of morphine should never exceed ¼ grain. He believes that the ordinary use of hot-water baths and of hot air depresses the already overburdened heart and increases still further the nervous irritability and thus favors the recurrence of the convulsions. A warm bath to cleanse the skin has no harmful effects and is soothing. Within the last few months nine cases of eclampsia have been treated in Boston hospitals in accordance with the principles of Stroganoff, and in the main, according to F. S. NEWELL (Boston Med. & Surg. Jour., Feb. 20, 1902) the results proved satisfactory, postpartum cases in particular yielding readily to the sedative treatment. In the remarkable series of cases reported by Stroganoff, 58 were cases which came under his own observation and the hitherto unheard of result of no mortality was obtained.

Treatment of Tetanus by Baccelli's Method.—The question of rheumatism and other etiological factors in the induction of tetanus in which infection cannot be traced to an external wound is discussed by E. CIOFFI (La Riforma Medica, Jan. 20, 21, and 22, 1902). The author believes that rheumatic tetanus cannot be considered a separate pathological entity, but that all cases of tetanus are due to infection with the bacilli of Nicolaier, and that exposure to cold, dampness, etc., but is a predisposing cause. In individuals in whom no external wound is visible, infection is to be attributed to the presence of the specific bacilli in the mouth, nose, bronchi or intestines. Statistics of treatment by tetanus antitoxin are quoted, showing a mortality of from 50 to 80 per cent.; contrasted to this, Baccelli's method of treatment by hypodermic injection of carbolic acid has given brilliant results, the mortality being estimated at from 12 to 30 per cent. The dose should never be less than one centigram to the kilogram of body weight; 3 grams have been administered daily without ill-effect.

PHYSIOLOGY.

Relation of Lipase to Fat Metabolism.—Not until clear ideas on the subjects of fat absorption and fat metabolism are obtained will one be able to make any definite progress in the study of the pathological problems connected with fatty degeneration and fat accumulation in the body. Substantial contributions are being made in this field. A. S. LOEVENHART (Amer. Jour. of Physiology, Feb. 1, 1902), prompted by the recent demonstration of the reversible action of lipase, ordinarily known as the fat-splitting ferment of the pancreas, which reversible action is shown in its ability to break up as well as to form fats, according to circumstances, has conducted a research in order to throw light on the history of fat in the organism. Although under certain circumstances, lipase may act as a lipolytic or fat-splitting ferment, and under other circumstances as a lipogenetic or fat-forming ferment, in either case its action is incomplete. In the intestine it splits fats into fatty acids and glycerin. These are absorbed by the epithelial cells in which these occur, as the result of the farther action of lipase, a partial synthesis of these elements, with the formation of fat. This synthesis is due to the effort on the part of the lipase to establish equilibrium between the fatty acids and the glycerin. But the latter is being constantly diffused from the attached border of the cells. The fat remaining in the cells would be immediately broken up by the lipase unless there were an immediate absorption of fatty acids and glycerin from the lumen of the intestine. Evidently the importance of the fat in the cells is not great, for none of it passes as such into the lacteals. In the thoracic duct the fatty acids and glycerin are found largely synthesized. Munk believes that this synthesis occurs in the lymphatic glands. To determine to what extent this is true, Loevenhart studied the action of extract of the lymphatic glands and lymph, and found that they have considerable lypolytic effect. This result simply demonstrated the presence of lipase in the lymphatic glands and lymph, without showing any synthetic power possessed by the same. To throw light on this subject, Loevenhart studied other tissues and found lipase present not only in the pancreas and lymph-glands and lymph, but also in the kidney, to a large extent in the liver, in the submaxillary gland, in the intestinal and gastric mucosa, the mammary gland, blood, brain, spleen, somatic and heart muscle, and to a considerable extent in adipose tissue. Its presence in abundance in the last is accounted for by the fact that during inanition the body can absorb its own fat, the lipase in the adipose tissue splitting it up in order to allow it to be "translocated" to the blood for instant consumption. This universal presence of lipase in the tissues seems therefore to be connected with the synthesis of fat, for its quantity varies according to the amount of fat found in the individual tissues. Lipogenesis is analogous to glycogenesis. The adipose tissue bears the same relation to the storing up of fat as the liver does to the storing up of glycogen. Although the liver contains more lipase than any other tissue, it normally contains very little fat, the normal structure of the liver being unfavorable to fat accumulation. Under pathological conditions, however, fat is stored up with ease and rapidity. The fatty degeneration incident to phosphorus-poisoning is not due to lipase, for the latter is not found in excess in cases of this condition experimentally induced.

Sensitiveness of the Skin to Heat.—In a contribution to the "Knowledge of the Topography of Heart Areas," E. VRESS (Pflüger's Archiv, Jan. 22, 1902) gives some valuable information. He divided the entire cutaneous surface into small quadrilateral areas, and by means of the thermesthesiometer he determined the degree of heat that in each area arouses the sensation of heat and the degree that arouses the sensation of pain. He tabulates these results and gives figures representing by means of shaded areas the varying sensibility of the skin. The sources of error in such an inquiry are to be attributed to the effects of adaptation, presence or absence of moisture, after-sensibility, hyperemia, fluctuations in the zero-point, and the presence and character of accompanying sensations. He finds that the left side of the body is more sensitive to heat than the right, the median surface of the trunk less than the lateral, and the lower limbs more than the trunk. In the last the sensibility to heat diminishes toward the distal parts, but not by regular stage. In fact some distal points on the extremities are more sensitive to heat than certain proximal points. The lateral surfaces of the extremities are less sensitive than the median. To what are these variations in sensibility due? Keeping in mind the causes of error mentioned, they are due to either the variations of innervation, the varying quality of the skin, or possibly both. The degree to which a portion of the skin is normally accustomed to high temperatures has a marked effect in diminishing its sensitiveness to heat. Thinness of the skin is, as a rule, associated with greater sensibility. The effects of habituation are supposed to cause some transformation in the structure of the skin. Veress found the lumbar region to be the most sensitive region and the soles of the feet to be the least sensitive; next the postauricular region of the scalp, and next the palmar surface of the fingers. Eliminating the soles of the feet on account of the effect of callosities in diminishing sensibility, Veress concludes that the portion of the body least sensitive to heat is the

postauricular region of the scalp. It is impossible to determine the purely ideal sensibility of the skin to heat from the standpoint of innervation, for it is impossible wholly to eliminate the effects of the condition of the epidermis and the effects of habituation and practice.

Subcutaneous Alimentation and Formation of Bile.—To determine the value of subcutaneous alimentation A. G. Barbèra (Bull. delle Scienze Med., 1902, Series viii, vol. i.) conducted a series of experiments upon a dog, the substances injected being somatose, glucose, olive oil, and distilled water, the elimination of bile and excretion of urea being noted in each case. There was no increase in any of these substances after injection of distilled water, 100 c.c., glucose, 10-per-cent. solution sterilized olive oil in moderate quantity, or somatose, 5-to-7-per cent. solution; neither was there local reaction. Elimination of bile and excretion of urea were increased after injection of glucose, 20-per-cent. solution, non-sterilized olive oil in large quantity, and somatose, 10-per-cent. solution; these injections gave rise to some local reaction. It is believed that the increase in excretion of urea, etc., in the latter series of experiments was due not to absorption of the substances injected, but rather to reactive processes induced by them through non-sterilization, concentration or excessive amount, causing destruction of the proteids of the body in more than the usual quantity, and the products of their decomposition passing through the liver, where they are chiefly converted into urea, effected an increase in the functions of that organ and increased production of bile. The hypotheses advanced in a previous paper are reiterated, the results of these experiments being considered as confirmatory to a degree of the principles they embraced, *i. e.*, that the increase in the quantity of bile after meals is due to the presence in the liver, and not in the intestines, of nutritive principles derived from the alimentary canal; and the production of bile is determined by the presence in the liver of certain substances derived directly from the organism itself, as is seen in intra-uterine life, in inanition and during the period of lethargy in hibernating animals, the production of bile being proportionate to the quantity of such substances and nutritive principles found in the liver. The author deduces from the experiments cited, that subcutaneous injections of nutritive substances are much less valuable than is their administration by rectum.

NEUROLOGY AND PSYCHIATRY.

Intracranial Tumor.—The diagnosis of such a condition in a man of thirty-seven years was made by J. Stewart (Montreal Med. Jour., Jan., 1902) because of constant severe headache, vertigo, bilateral optic neuritis, exaggerated knee-jerks and ankle-clonus. It was localized on the left side at the lower part of the ascending frontal convolution, because of spasms and weakness of the muscles of the lower part of the right side of the face, paresis of right side of tongue, and slight paresis and disturbed sensations in the right arm and hand. It was thought to be subcortical, because of absence of general aphasia and the presence of progressive dysarthria. It was near the cortex, because of the muscular spasms and because a unilateral lesion to induce dysarthria must be sufficiently near the cortex to include not only the speech tracts which pass down the same side, but also those that cross over in the corpus callosum and pass down the opposite side of the brain. Antisyphilitic treatment proved ineffective, and the good nutrition of the patient and absence of tuberculosis elsewhere made tuberculosis improbable, so a glioma was suspected and an operation was performed. The tumor was found to be an encapsuled, firm, whitish glioma, measuring one inch by one-half to three-quarters, and was removed. The patient's articulation after operation became somewhat worse, but on the eighth day began to improve, so that at about the third week he was able to articulate words of two or more syllables. At the end of four weeks, speaking slowly, his articulation was nearly normal. The paralysis disappeared and the patient was discharged cured.

Pelvic Lesions and Mental Disturbances.—Among lunatics there are more single than married men and more married than single women, writes A. Thobbs (Amer. Jour. Obstetrics, Feb., 1902), and this may be accounted for because single men lead more irregular lives than do married men, so favoring subsequent mental collapse, and married women, owing to injury and disease entailed by maternity, are more subject to mental degeneration than are those who are free from pelvic troubles. At the Asylum for the Insane, London, a pelvic examination in one thousand females disclosed disease or abnormality in 25 per cent. Medical treatment was found difficult to carry out and non-productive of result, so operation became the routine practice. The lesions were tabulated under six headings, viz.: Ovarian disease, abnormal displaced uteri, tumors, cervical lesions, diseases of the uterine body and endometrium, and injuries to the perineal body. Eighty-four cases of acute mania were operated upon with mental recovery in fifty-one; one hundred and five cases of chronic mania with recovery in nineteen; five cases of epileptic mania without any recoveries; fifteen cases of puerperal mania, with recovery in seven; four cases of folie circulaire with one recovery; one case of psychocoma with recovery; twenty-five cases of acute melancholia with recovery in thirteen; thirteen cases of chronic melancholia with recovery in six; two cases of puerperal mania with recovery. Some of the cases that failed of cure showed more or less improvement in the mental condition. The mental results of operations for hernia in 39 patients of both sexes were almost nil.

Treatment of Paralytic Attacks.—As a guide for the treatment, the paramount fact must be advanced that the patient generally succumbs to the effects and complications which finally occur, and it is against these that therapeutic or rather prophylactic measures must be directed. A. Pick (Phil. Med. Jour., Feb. 8, 1902) believes that the interruption of the attack should be considered first, as it is often influenced by the irritation of a filled bladder or rectum or often of an unobserved furuncle, and finally, especially in children, by some slight febrile affection. He does not believe in any specific against the attack itself and considers unfavorably the injections of ergotin often recommended. In addition to the local measures directed against decubitus, careful attention must be given to the disinfection of the accessible parts of the alimentary canal. The proper cleansing of mouth and nose may obviate pneumonia and high enemata of water or boric-acid solution will prevent auto-intoxication from the intestine, which has often been held responsible for the attacks themselves. To overcome the danger of deglutition pneumonia the nourishment should be liquid, but the power of swallowing should first be tested. When this act is interfered with, rectal alimentation is preferable to the use of the pharyngeal sound. The enemata should be small and bland. To combat the increased elimination of water during the first few days, simple saline enemata should be given every hour.

The X-ray in the Diagnosis of Lesions of the Brain.—The second case on record in which a brain tumor was localized during life by means of the X-ray is reported by C. K. Mills and G. E. Pfahler (Phil. Med. Jour., Feb. 8, 1902). A clinical diagnosis was

made from the general symptoms and from the combination of motor paralysis with impairment of cutaneous sensation, astereognosis and hemianopsia, of a dense tumor of large size in the parietal region, chiefly subcortical, possibly invading the motor region and extending to or compressing the posterior limb of the internal capsule and the optic radiations near the basal ganglia. The negative obtained by the X-ray showed a large shadow lying between the coronal suture and the posterior meningeal artery. Experiments made on cadavers, with hardened tumors placed in artificial cavities of normal brains, likewise showed appropriate shadows. The authors conclude from other experiments that in addition to the detection of tumors proper, other abnormalities and deficiencies in brain substance can also be detected, which will probably be of value in the diagnosis of cysts, softening and hemorrhages. It is necessary, however, to exercise great care in differentiating the abnormal shadows from those obtained from normal parts of the brain.

Cerebral Bulbar Palsy.—Paralysis of the tongue from disease of a single cerebral hemisphere, though always associated with hemiplegia, is not at all uncommon, but still is difficult to explain, as the tongue is an organ the movements of which are made symmetrically, and which has, as would be expected, a bilateral representation in the cortex. An interesting case of bulbar paralysis is reported by C. L. Dana (Phil. Med. Jour., Feb. 8, 1902) in a man sixty-seven years of age, who was admitted to the hospital with the history of an attack of left-sided hemiplegia. The incomplete paralysis of the left arm, leg, and lower side of the face was accompanied by a distinct and complete paralysis of the tongue and by a partial paralysis of the lips. The patient died three weeks after the attack, the hemiplegia having improved, but no change having been noted in the condition of the tongue and lip palsy. Autopsy showed a focus of hemorrhagic encephalitis involving the cortical and subcortical tissue in the lower and posterior end of the posterior central and the adjacent inferior parietal lobule. From a study of his own and other reported cases, the author concludes that the tongue and lip centers are probably more or less identical. One group of centers for the tongue is in relation with the articulatory movements of the lips and another with the movements of mastication. Paralysis of the tongue and to some extent of the lips from a one-sided cortical lesion occurs and may perhaps be explained by the fact that in many individuals the brain becomes accustomed to using only one center in controlling the movements of these parts, causing a paralysis of these when the center is destroyed. When the center on the other side becomes awakened to its capacity, it takes up these movements and the paralysis disappears. This theory may explain also the frequent difficulty in deglutition and articulation, in many cases of hemiplegia due to ordinary cerebral hemorrhage. That a permanent bulbar palsy can be caused by a cortical lesion of one hemisphere is doubtful and if it occur it must be regarded as an anomaly.

MEDICINE.

Acute Syphilitic Nephritis with Extreme Albuminuria.—Although Karvonen collected a series of cases of true acute syphilitic nephritis, the possibility of this condition is not generally recognized. The most skeptical critic, writes E. Hoffman (Berl. klin. Woch., Feb. 10, 1902), must admit that in a certain number of cases acute nephritis has occurred during the early stages of syphilis in previously healthy individuals, and that such nephritis has been cured by mercury. It is not easy to see why syphilis, which from the eruptive period, is a constitutional disease capable of affecting any or all the bodily organs, may not affect the kidneys in the same manner as any other infectious ailment. Hoffmann reports a case of acute syphilitic nephritis occurring in a man of twenty-three, who, however, gave a history of having had scarlet fever when five years of age. Following an infection occurring in June, the patient had an eruption early in August. A few days later the patient noticed that his urine was darker than the normal color and of diminished quantity. Urinalysis early in September showed, according to Esbach's method, 7 per mil. of albumin after dilution of the urine with nine parts of water—*i.e.*, the equivalent of 7 per cent. of albumin. Hyaline casts were present. Salkowski was asked to make a careful quantitative analysis of the urine, and found in two examinations 8.5 and 7 per cent. respectively of albumin by weight. Under treatment with mercurial inunctions the albumin and casts gradually disappeared, together with the ordinary syphilitic manifestations. Justus demands, for the proof of the syphilitic origin of albuminuria, evidence on three points: (1) Healthy kidneys before the beginning of the specific disease; (2) the occurrence of albuminuria must go hand in hand with other manifestations of syphilis, and (3) the albuminuria must respond in an unmistakable way, either by marked improvement or by cure, to treatment by mercury. The last two conditions are thoroughly established in Hoffmann's case, and a careful analysis of the history of the case makes it appear probable that the first condition also existed.

Is There a Fourth Disease?—About a year ago Dr. Dukes declared that he had found a disease which resembled scarlet fever, measles and rubella, but which could be distinguished from them all and hence was known as "the fourth disease." In an attempt to confirm this opinion, C. B. Ker (Practitioner, Feb., 1902) has been watching for cases illustrative of the new disease, but as yet has been unable to satisfy himself of its existence, although his experience is very wide. A number of very valuable hints are given in the course of this article relative to the differential diagnosis of these eruptive diseases. Scarlet fever usually has a very short period of incubation, from three to five days, while measles takes from ten to thirteen days to develop. Scarlatina has an abrupt invasion associated with marked symptoms, a rapid rise of temperature accompanied by headache, vomiting and sore throat, the rash appearing usually within thirty-six hours. Measles has a more insidious invasion, lasting four days as a rule. The symptoms are those of catarrh, sneezing, coryza, running at the eyes, photophobia, and cough. There is no sore throat or vomiting, but a well-marked stomatitis. Koplik spots may usually be seen if the throat be examined in bright daylight. With the eruption the characteristic signs appear. In scarlet fever the bright scarlet, finely-punctate rash is first seen on the sides of the neck and the upper part of the chest. The face is flushed, but the rash as a rule avoids it, merely appearing at the angles of the jaw. The circumoral region stands out, unaffected by flush or rash, as a distinct white ring round the mouth. The conjunctivæ remain clear. In measles the rash covers the whole face, beginning from the roots of the hair and behind the ears. The eyes are suffused and the circumoral region is affected. The rash is composed of raised, velvety papules, coalescing into irregularly-shaped macules, varying in color and being less bright than scarlet fever. Scarlatina presents a bright red appearance of the fauces with perhaps some swelling of the tonsils and a strawberry appearance of the tongue. In measles sore throat is seldom complained of, but the mouth is usually congested and dirty and no strawberry appearance of the tongue is present. Scarlet

fever temperature falls by lysis, that of measles by crisis. There is a branny desquamation in measles, but it can in no way be confused with the characteristic worm-eaten appearance of the peeling in scarlet fever. In rubella the incubation is from ten to twenty-one days and seldom are there any symptoms of invasion. Occasionally a slight sore throat or coryza may precede the eruption. The eruption consists of small discrete spots, larger than the punctate spots of scarlet fever and smaller than the papules of measles. They appear first on the face and the circumoral region is always implicated. The spots spread rapidly over the body and the case then looks more like scarlet fever, especially when the rash has disappeared from the face. The temperature is often absolutely normal. There is usually a slight sore throat and the patient may sneeze a few times. Sneezing is very rare in scarlet fever. The fourth disease as described by Dukes lies between scarlet fever and rubella. The rash covers the whole body in a few hours and is brighter than that of scarlet fever. The throat is swollen and the conjunctivæ are pink. The glands are enlarged as in rubella, the desquamation may be slight or profuse. The tongue is clean or only slightly furred. It affords no protection against scarlatina or rubella. Since a second attack of scarlatina or measles is possible and since the few cases reported might easily have been mild cases of scarlet fever, it seems unnecessary as yet to attempt to differentiate a fourth disease.

Masked Malarial Fevers.—Few physicians have yet learned to appreciate what a variety of obscure symptoms may be present in cases of chronic malarial poisoning. Since the return of our soldiers from Cuba and the Philippines, numerous cases have arisen in all parts of the country and the recognition of this peculiar infection is extremely important. In an analysis of 195 cases of latent and masked malarial fever in which the diagnosis was not made, C. F. Craig (Med. Rec., Feb. 15, 1902) shows how easy and natural it is to make mistakes unless a thorough examination of the blood is made. Symptoms referable to the intestinal tract were most frequently present, the diagnosis of chronic dysentery being made in fifty-five cases. Although the cases showed irregular slight rises in temperature, malaria could not have been diagnosed from the symptoms. Quinine was of marked benefit in all those instances in which the parasites were demonstrated. Pulmonary tuberculosis was another diagnosis frequently made. These cases showed a quotidian rise of temperature and were accompanied by cough, great emaciation, profuse sweats, and presented a picture of pulmonary tuberculosis. Various other diagnoses were made, many of them being correct, but the course of the diseases was modified by a concomitant latent malarial poisoning and could be greatly improved by the elimination of this factor. It is therefore advisable in any obscure or chronic disease, especially when originating in the tropics, that a thorough blood-examination be made. Most of the cases are due to the estivo-autumnal parasite and the knowledge of its presence is especially important for it is this form of the disease which may at any time become pernicious.

Stokes-Adams Disease.—The various symptoms accompanying a permanently slow pulse without heart lesion, which are grouped in the rare condition known as Stokes-Adams disease, are enumerated by L. Azote (La Sem. Med. d. Buenos Aires, Year VIII., No. 45), as observed in a recent personal experience and as reported by other clinicians. The characteristic triad of symptoms are stated to be as follows: Bradycardia, epileptiform and syncopal attacks, the first being the invariable element. Other manifestations are increased arterial tension, absence of valvular lesions with accentuation of the diastolic sound in the aortic interspace coexistent with arteriosclerosis (which latter is thought to play an important part in the pathogenesis of the disease), vertigo, albuminuria, decreased urea, unequal dilatation of the pupils. By many observers insufficient blood-supply to the bulb is thought to be an etiological factor in the condition; this bulbar anemia, in the author's opinion, is probably due to arteriosclerosis.

Hemoglobinuria in Malaria.—It has been a disputed question whether the hemoglobinuria, which is sometimes observed during the course of a malaria, is due to the quinine which has been given or whether it is a modification of the malarial infection. It is also believed that this condition is associated with malaria developed in the tropics and is influenced by alcoholism or other predisposing causes. In contradistinction to this is an interesting case reported by M. Otto (Deut. med. Woch., Jan. 23, 1902). The patient contracted and developed the disease in a northern climate; it ran a course of the quartan type for four weeks uninfluenced by treatment. Then a single dose of quinine (7½ grains) was followed shortly afterward by a severe hemoglobinuric attack. About five weeks later a similar attack followed the ingestion of 15 grains at one dose. The personal predisposition toward the drug seems to be set aside by the fact that the patient had been taking continuous small doses without any such effect; later on steadily increasing quantities were well tolerated. The patient's personal history, climatic conditions, and malarial changes in the blood could it seems be entirely eliminated, and the true cause for the attack assigned to the quinine.

The Source of Fever.—Although it has been demonstrated that an increase in bodily temperature is due to an increase in heat production, it still remains to be shown in what organs the increased heat production takes place. An interesting contribution to this question is made by the discoverer of the heat center in the brain, E. Aronsohn (Deut. med. Woch., Jan. 30, 1902). After eliminating by animal experiments the large glands and the blood as originators of heat, he shows by various devices that the muscles themselves are the true seat of fever production. A further proof is furnished by the following experiment: An animal is brought into a condition of fever by some definite irritant and the entire musculature eliminated as a factor by an injection of curare; this paralyzes the motor end organs in the muscles, but leaves the muscle itself free to respond. In all cases the temperature was found to drop about half a degree in ten minutes. In animals subjected to starvation methods the application of heat irritants produced only the slightest increase in temperature. From his observations the author concludes that fever consists of a pathological irritation of the known heat centers whereby the motor-trophic apparatus of the muscles, both voluntary and involuntary, is stimulated to a greater heat production, an increased metabolism, and a variation in the heat radiation.

How to See Stomach Curvatures.—Various methods of stomach examination have been advocated in order to locate the position of the curvatures. Many of them involve the use of special instruments and necessitate considerable skill. M. I. Knapp (N. Y. Med. Jour., Feb. 15, 1902) suggests a very simple and, as he says, unerring method to determine this point. The patient lies flat upon the back, relaxing his muscles and breathing easily. The examiner stands at the side or at the shoulder of the patient so as to look either up to the stomach region or down upon it. As the patient breathes the examiner follows certain lines which he sees move up and down with respira-

tion. The curvatures of the stomach will be seen as very distinct fine lines moving under the skin even when the wall has considerable fat. A mark is made where the lines stop each time and to corroborate the observation percussion is used by placing the hand flat upon the abdomen, one finger on either side of the above line. If the line of curvature has been properly located a change in note will be found at that point. The percussion should be light and the stethoscope is of great assistance. It may be placed anywhere in the neighborhood of the stomach.

Cardiac Myopragia.—Attention has been called by Prof. Potain (La Médecine Moderne, Dec. 25, 1901) to a peculiar state of unstable biological equilibrium in various viscera. How many people there are who have one or more organs which do their proper work under ordinary circumstances, but rebel against the least extra requirement. This condition Potain called myopragia, and he found it most common in the heart. It is important to recognize such a condition, for a heart of this kind may be much benefited by the daily administration of a granule containing ¼ of a milligram (gr. 1/250) of Nativelli's digitaline.

Transmission of Bovine Tuberculosis.—In an endeavor to record impartially the various data bearing upon the question of the intercommunicability of human and bovine tuberculosis, Adami (Phil. Med. Jour., Feb. 22, 1902) comes to the following conclusions: (1) Bovine tuberculosis is easily conveyed from cattle to cattle; for practical purposes other modes may be neglected. (2) Natural infection of cattle with human tubercle bacilli is extremely rare. (3) Swine are easily infected with both human and bovine bacilli and in very rare cases might act as intermediaries. (4) Bovine tuberculosis can be eradicated even when the human form remains widespread. (5) Human tuberculosis is usually conveyed by inhalation, more rarely through the alimentary or the genital tracts, or by surface wounds, and the bacilli are conveyed from previous cases of the disease in man. (6) The bacilli of man and cattle do not present specific differences, merely racial ones. (7) It is possible to transmit bovine tuberculosis to man through wounds or through the digestive tract; this is usually the case in infants and children. In passing through cattle the bacilli seem to acquire a lessened virulence for man and it evidently requires a large number, especially from extensively diseased cattle, to produce any effect; all animals showing physical signs of tuberculosis or udder disease should be condemned. As a final criticism of Koch's recent address, he laments the manner in which his conclusions were published, in so far as they should not be interpreted to influence in the slightest degree the legislative measures adopted to reduce the danger to cattle and the community resulting from the spread of tuberculosis among domestic animals. In not having done this he left it to be inferred that legislation against bovine tuberculosis is in excess of what is necessary.

Tuberculosis in Infancy.—The diagnosis of tuberculosis in earliest infancy and up to the fifth and sixth years of life affords considerable more difficulties than in adults, says A. Querin (Münch. med. Woch., Feb. 11, 1902). In most cases the disease finds its beginning in the glands and pulmonary involvement follows owing to rupture into a bronchus; hence, the usual site is at the root of the lung and never at the apex. Bronchopneumoniæ following the infectious diseases also frequently lead to tuberculosis and here also, for mechanical reasons, the apex escapes, the lower lobes on both sides of the spine being generally affected. Concerning frequency, hardly any cases have been reported in the first three or four weeks of life and only a few in the first months after birth. Formation of large cavities is not common. Little can be said of symptoms; there may or may not be a slight cough; râles without signs of consolidation occur here and there over the lungs and fever may be slight or entirely wanting. Unfortunately sputum can be obtained only with difficulty for examination, but a trick may here be employed: After an attack of coughing, the index finger, wrapped in sterile cotton, is introduced behind the tongue and sufficient material is thus obtained.

SURGERY.

Nephrotomy in Nephritis.—Renal disease has been considered almost invariably as a contraindication to operative interference of any kind, yet Harrison, in 1896, proposed incision of the kidney in acute nephritis, scarlatinal or otherwise, for reduction of congestion and, in his belief, prevention of chronic nephritis. Edebohls practised decortication for the cure of nephritis. C. Mongour (Jour. de Méd. de Bordeaux, Feb. 9, 1902) reports two cases, apparently hopeless, which were successfully treated by nephrotomy after all other measures had failed. To the class of patients beyond therapeutic treatment the author limits the operation; yet, as a last resource, finds its justification in the fact that autopsy has shown, in many cases, sufficient healthy tissue in the kidney to carry on its function, were it not for the presence of congestion, the relief of which would, in all probability, have averted death, absolute renal insufficiency being regarded as made up as a rule of permanent insufficiency due to the renal lesion and of temporary insufficiency which it is possible to relieve.

Osteitis Deformans.—Only ten cases of this rare disease have been reported in this country thus far. Another is added by J. C. Wilson (Phil. Med. Jour., Feb. 15, 1902), the patient being a male, aged sixty-three years, of good previous history. The history extends through a period of sixteen years, the first symptom noted being an outward bowing of the legs, followed some five years later by a bowing of the forearms, all of which grew progressively worse and were accompanied by an increase in the size of the head and by a kyphotic condition of the spine. The case is minutely described, but no form of treatment was found to be of any avail.

Effects of Cocaine and Eucaine.—A summary of the experimental research of the action of these drugs and the clinical application of the evidences is submitted by G. Crile (Jour. Amer. Med. Assoc., Feb. 22, 1902). A large number of experiments on animals were made in accordance with the idea that the injection of cocaine or eucaine into the substance of a nerve trunk causes an effectual physical block and prevents the passage of all afferent and efferent impulses. They form no chemical combination, but merely suspend the functional activity of a nerve. When applied to the floor of the medulla all the manifest functions of that organ are temporarily suspended, except the heart's action and that is modified. Both eucaine and cocaine block the impulses set up by electrical stimulation even after death. The inhibitory action of the vagi is wholly or partially suspended, and it is probable that the increased rapidity of the heart action is due to the removal of this vagal influence and not to the stimulation of the accelerators. It was also found that dogs under the influence of these drugs endure more exposure and injury of the intestines, without any fall in the blood-pressure than those not so treated. If a series of injections were administered at given intervals, a marked tolerance was acquired, so that finally little effect could be produced. The clinical application of the experimental evidence is supported by a recital of the author's cases. Amputation of the leg below the knee was done

five times with anesthesia secured by "blocking" the external cutaneous, anterior crural, and sciatic nerves. Four operations in the area of distribution of the ulnar nerve and two amputations at the shoulder-joint were successfully done. In all these cases the important point demonstrated was the avoidance of shock, due to the fact that all impulses, whether constituting pain, or controlling vasomotor, respiratory or cardiac mechanisms, are "blocked" or "physiologically amputated." Given hypodermatically, experiments show that these drugs diminish shock in operations on the splanchnic area, and this evidence seemed to be corroborated in two cases of gunshot wounds of the intestines.

Ligature of the Dorsalis Pedis Artery.—There are few arteries which present so many anomalies as the dorsalis pedis. According to the researches instituted by Viannay (La Sem. Méd., 1902, No. 4), the course of this vessel as described by most of the classical treatises is not met in practice in the majority of the cases. Most frequently the artery in question bifurcates at its exit from beneath the anterior annular ligament of the tarsus. The two branches may be of equal volume: the one, the internal, follows the usual course of the normal dorsalis pedis artery, while the other, the external, corresponds to the dorsalis tarsi artery. It is in those cases in which the two branches of bifurcation are of unequal size that the trouble arises. Sometimes it is the internal which is the larger, and hence the typical classical description of most authors. Sometimes it is the external branch which is the greater, while the normal dorsalis pedis on the other hand is rudimentary or at times even absent. Sometimes also the blood-supply of the back of the foot is due entirely to the external artery, which then corresponds to the dorsalis tarsi artery. Such being the case, if one depend entirely upon the typical method of ligating this artery he is in danger of finding only a very small vessel or, perhaps, none at all. He is then compelled to search beneath the annular ligament, which is the only point where the vessel can always be found. Therefore, in order to avoid this useless search, Viannay proposes that the classical incision be extended upward, so that the inferior border of the annular ligament shall be exposed. In this way the artery will always be found, whether it consists of one or two branches at this point.

Poultice Method of Healing Abscesses.—In order to avoid the danger of infection from septic materials used in poultices, M. B. Hutchins (N. Y. Med. Jour., Feb. 22, 1902) advises the use of a three-per-cent. carbolic-acid solution in mixing up the flaxseed and claims that he obtains excellent results without making wide incisions. The poultice is changed frequently, the moisture affording constant drainage and the dressing readily absorbing the discharge. There is often a saving of seventy-five to eighty per cent. of time in healing.

Prevention of Vomiting after Ether Anesthesia.—Believing that the nausea and vomiting after ether administration are due to the irritant effect of the drug upon the gastric mucosa, R. J. Hess (Med. Rec., Feb. 22, 1902) has made various experiments in which the amount of the drug used was diminished as much as possible and the poison diluted before being eliminated. It is known that when sufficient quantity is taken into the blood of animals, its excretion into the stomach and by the kidneys may set up an acute inflammation of these organs. By working along these lines, it was found that the shorter the operation and the less the ether used, the less was the danger of subsequent vomiting. In preparing patients for operation it has been customary to stop all solid foods for at least six or eight hours before the operation and even to diminish the fluids for several hours Again, only very small quantities of water are allowed during the twenty-four hours after the operation. It is believed that these procedures so drain the system of fluids that the ether excreted is in a much more irritating and concentrated form. To avoid this he gives plenty of water up to the time of operation and as soon as the patient awakens from two to six ounces are administered. Very good results were obtained by this method.

Taxis in Obstructed Herniæ.—A warning cry against the use of taxis in incarcerated herniæ is raised by O. Lan (Münch. med. Woch., Feb. 4, 1902) for the intestines are so frequently injured and reduction *en bloc* is effected with so little effort that there is no excuse for employing this antiquated method in these days of aseptic surgery. It is too often found that the symptoms persist after apparently successful taxis and that then an operation much more serious and difficult than a primary herniotomy will become necessary. The hernial sac should always be opened before reduction and local anesthesia may be employed if this is thought best.

Rare Anomaly of Biliary Passages.—The following rare anomaly was found by H. Kehr (Münch. med. Woch., Feb. 11, 1902) during an operation. The gall-bladder was attached to the left lobe of the liver, the cysticus emptied into the narrow left hepaticus, which joined close to the duodenum with the very much enlarged right hepaticus, the course of which was a normal one along the lower edge of the hepato-duodenal ligament.

Position for Gall-Stone Operations.—While attempting to remove a stone incarcerated in the common duct, W. Ruhl (Münch. med. Woch., Feb. 4, 1902) accidentally cut into a large vein, presumably the portal. The vessel could not be grasped owing to the fact that the deep funnel-shaped wound imediately filled with blood which obscured everything and the patient would no doubt have bled to death had not the happy expedient been resorted to of elevating the trunk to an angle of 45°, so that the blood could readily flow out and its source be determined. Not only is hemorrhage more readily controlled by this method, but the parts are rendered more accessible and the relations more nearly approach the normal in all operations on the upper part of the abdomen.

Surgery of the Gall-Ducts.—An analysis of cases of gall-stones treated during a period of ten years at St. Hedwig's Hospital in Berlin shows that 41.5 per cent. of the cases treated medically were cured, while surgical interference was successful in 98 per cent. of the cases in which it was practised. The surgeons in this institution, says H. Scheuer (Berl. klin. Woch., Feb. 17, 1902), have come to regard excision of the gall-bladder as the normal surgical procedure for the treatment of gall-stones. In a number of cases which this writer describes in detail, cholangitis essentially determined the clinical picture. One patient had high fever, pain in the hepatic region, liver enlarged downward, and marked icterus. Aspiration was performed over what was assumed to be the region of the gall-bladder, the needle being passed inward about 6 cm.; bile without pus was withdrawn. Laparotomy was begun at once to prevent as far as possible the escape of bile into the peritoneal cavity. The gall-bladder proved to be small; the common duct was not enlarged; the liver was much enlarged, and the aspirating needle had penetrated into the hepatic substance. Renewed puncture of the parenchyma of the liver resulted as did the original puncture. The diagnosis was therefore cholangitis with closure of many smaller biliary passages, the main ducts being free. Cystostomy would here have been valueless. By means of the Paquelin cautery, a six-inch incision was made directly into

the parenchyma of the liver; a large biliary duct was met, from which bile isued with great force. The operation was very successful. At first the bile was discharged almost wholly through the wound; but from the tenth day after the operation the stools resumed their normal color and the icterus rapidly disappeared. According to Scheuer, no similar operation is described in the literature, although Hirschberg at the last International Medical Congress recommended this procedure in the treatment of hepatic cirrhosis. The operation is evidently not followed by the serious hemorrhage which might be anticipated.

Gastric and Duodenal Ulcers.—In the current text-books on medicine one finds a bewildering number of theories touching on the etiology of these conditions; none are supported by adequate evidence; some of the most favored, according to C. R. Box (Brit. Med. Jour., Feb. 8, 1902), are as follows: (1) Arterial thrombosis; (2) embolism; (3) endarteritis obliterans; (4) simple spasm; (5) mechanical injuries; (6) diminished alkalinity of the blood; (7) microbic infection of the lymphoid follicles of the stomach-wall. This last is the most recent theory and for the following reasons seems to have a very practical bearing: (*a*) For any part of the intestinal tube below the duodenum the theory of the infective nature of ulceration is at once accepted. Typhoid, tuberculous, and dysenteric ulcerations are unanimously attributed to an infective cause. The same holds for ulcerative colitis and the destructive process in appendicitis. (*b*) The fact that it is not uncommon to find that ulcers both in the stomach and in the duodenum may be multiple, and not only multiple, but so placed—either exactly opposite or quite close to one another—that infection from one to the other may have easily occurred. When two ulcers are placed opposite to each other, it is said that close examination will often show that one is an older ulcer than the other. These opposed ulcers have repeatedly been met with postmortem, not only in the stomach but also in the duodenum. (*c*) The appearance of a recent acute ulcer at the time of operation for perforation is itself highly suggestive, and it was this appearance which first seriously directed attention to the microbic theory. Such an ulcer is always surrounded by a zone of highly-edematous and softened tissue of considerable extent. Stitches easily tear through the edematous wall, and so considerable difficulty may be experienced in applying the sutures. Every surgeon who has had much experience in the suturing of acute perforated ulcer recognizes this edematous condition. That gastric ulcer is a disease of great latent danger is shown by the fact that a large percentage of ulcers perforate with fatal results without giving warning of their existence by any other symptoms than vague dyspeptic pains. Hematemesis and melena, which will probably for a long time to come be the only pathognomonic signs of gastric and duodenal ulceration, are often lacking. The differential diagnosis of gastric ulcer must be made, first, from renal disease; second, from locomotor ataxia; and, third, from hysteria. These latter cases fortunately are rare. The blood is obtained by injuring mucous surfaces, such as the mouth or vulva. These patients often mix their urine with their vomit and indulge in other fraudulent methods which are as interesting to watch as they are difficult to trace. A last possible point in establishing a differential diagnosis in these conditions lies in remembering that hematemesis occasionally occurs in mitral disease. Although ulceration is much more frequent on the posterior walls of the stomach, perforation with general peritonitis more often occurs anteriorly. This is due to the protection afforded the retrogastric space by the lesser peritoneal cavity. It is necessary in all cases of perforated ulcer, whether they have been operated on or not, to keep a very careful outlook for localized collections, the most frequent sites of which are in the lesser sac, subphrenic, perisplenic or pelvic. In conclusion, then, a diagnosis of ulcer should be established positively only on the occurrence of hematamesis or melena; tentatively only after a consideration of the following points: (1) The patient's statement as to hematamesis should be received with reserve and corroborated. (2) In doubtful cases it is necessary to see the vomited materials one's self if this be possible, and, better still, to observe or have observed the actual act of vomiting. (3) In all cases the urinary examination should be a routine procedure. This examination should be thorough, and include the search for casts as well as for albumin. A single examination is often not enough. (4) The eyes should always be examined, particularly with a view to the presence of the normal light reflex, and the occurrence of changes in the fundus. Optic atrophy may put one on the track of locomotor ataxia; the presence of optic neuritis may reveal an unsuspected cerebral tumor, and the presence of neuroretinitis may indicate renal disease. (5) An examination of the stomach-contents for the presence of excess of free HCl should always be made when practicable, and if the first examination be negative a second should be undertaken before one can be sure of its absence. Hyperacidity is a valuable, although not absolutely constant, sign of gastric ulceration. (6) Every patient in whom gastric ulcer is diagnosed should be looked upon as seriously ill. The disease is commonly treated much too lightly, considering its liability to such serious and fatal complications. Prolonged rest in bed and proper dieting for some time are essential in all early cases.

Gold Sutures.—The advantages of gold sutures are especially urged in operations for hernia. I. Tansini (La Riforma Medica, Jan. 18, 1902) states that the character of the sutures used is frequently responsible for suppurative conditions occurring after operations for the radical cure of hernia. The advantages claimed for the gold suture are that it can be drawn out to a very fine thread, being superior to silver in this respect; it can be readily and thoroughly sterilized; it is flexible and resistant, and as easy of application as silk thread; it is more rapidly fastened by a simple twisting of the ends, rather than tying, as in the case of the silk suture.

EYE, EAR, NOSE, AND THROAT.

Climate or Spectacles?—Under this title attention is drawn by G. S. Hull (Ophthalmic Record, Jan., 1902) to cases of neurasthenics sent to Pasadena for rest who apply for glasses to relieve them of the discomfort they feel in the brighter sunshine of California. He notes that when he has fitted them suitably for refractive errors, not only are they relieved of the trouble from increased sunlight, but they are also relieved of that for which they were sent from the East, *viz.*, their neurasthenic symptoms; and he very pertinently asks, "Climate or spectacles, which?" leaving the answer to be given by the physicians in the East.

Perforated Disk in Subjective Testing of the Refraction.—In using a mydriatic the disadvantage is in the enlargement of the pupil; a desideratum would be a drug which would paralyze accommodation and not affect the pupil. F. B. Eaton (Ophthalmic Record, Jan., 1902) advocates the use of a disk with 4 mm. perforation for distance and 2½ mm. perforation for near to confine the rays of light to what he prefers to call the natural dioptric path, called by Jackson the "visual zone." He claims to avoid errors in astigmatism and to arrive easily at the meridian of least refraction.

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THE PROPOSED PRIVATE SMALLPOX HOSPITAL.

So much has appeared of late in the daily papers concerning the necessity of a private hospital for well-to-do smallpox patients that an interview with some of those gentlemen who are of necessity most conversant with the subject must be interesting and to the point.

Dr. George T. Stewart, the superintendent of Bellevue Hospital, who comes into very close contact with this type of work and who is a recognized authority in hospital management, spoke most emphatically on the subject. He said in part that there were several important reasons which seemed to him paramount, and which, when subjected to calm criticism, could lead but to one conclusion. The psychical factor is always paramount. Under this the friends and family are first to be considered. The effect of a new environment on the patient himself. For some reason or other the separation by water from loved ones afflicted with smallpox seems to be peculiarly dreaded by most people. So far as the effect on the patient goes, it is not without important medical significance, for for one accustomed to a comfortable environment it is by no means propitious to be cast suddenly into an entourage designed to fill the needs of our more humble citizens, this being the character of the accommodations which are given to all at North Brother Island.

"What do you think would be the effect upon you or me," said the affable superintendent, "if we were taken from our comfortable quarters and obliged to wear the garb, to eat the food, to sleep in the bed, to see the sights, and to hear the sounds to which our gentle organs are unaccustomed? The psychical effect upon such patients on visiting North Brother Island is of necessity somewhat similar to that which would be observed in us if we were put up in the penitentiary and obliged to wear the medieval hob-nailed shoes which characterize the chief terrors of that institution." So far as the administration of the North Brother Hospital goes, Dr. Stewart says that, considering the funds meted out by the city for the purpose, the patients get fully as good care and about the same type of food as are given at Bellevue and the other city hospitals. It is in the nursing staff, however, that the hospital is unfortunately crippled. Even among professional nurses the idea of smallpox is still the ancient one, namely, that it is a noisome disease of a most filthy character. Where there are so many other openings for professional nurses, who, notwithstanding their many virtues, are rather hedonistic than altruistic as compared with the old-fashioned Sisters of Charity, it is very difficult to get a good nursing corps. Dr. Stewart believes that $100,000 has been promised to the City, but feels that the chief difficulty in the acceptance of this donation is that the Board of Health is not empowered to run such an institution until the funds from private sources are adequate to cover all its running expenses. Dr. Stewart said, "You may quote me as saying anything and everything in favor of our having such a hospital as is proposed."

Dr. Hermann M. Biggs, while not as cordially in favor of the project as Dr. Stewart, would certainly offer no objection to the proposed hospital. He said, however, that there were much more crying needs for a modern hospital with suitable equipment to care for the poor children of the Borough of Manhattan who were afflicted with measles and scarlet fever, the present accommodations being quite inadequate. As to the gift of $100,000, that would be a mere drop in the bucket; the cost of the land would be at least $250,000, the only suitable site in the Borough being at the foot of East Sixteenth Street, and the building itself would cost an additional $100,000. This

might all be readily compassed, particularly if some rich people failed to get vaccinated, but the main difficulty is that such an institution would need an endowment fund which would yield an income of $150,000 a year. Such a hospital is extremely expensive to run because among the rich, at least, smallpox is essentially epidemic rather than endemic in this city and most of the sporadic cases would continue to be cared for by public charity. For months at a time the hospital would be empty, but its expenses would continue, for the staff must of necessity be permanent. Even in epidemic days, the income from the rent of rooms, which under any conditions would have to be almost extortionately high, would not begin to defray a tithe of its expenses. Furthermore, it would not be possible for the Health Board to assume the control of a private smallpox hospital and go into the business of renting rooms without obtaining special legislation from Albany. "Let the rich people be vaccinated," said the doctor naïvely, "and there will be no occasion for any such institution."

ANTIVIVISECTION ONCE MORE.

The Zoöphilists of Boston in their annual engagement at the Massachusetts State House are now presenting the notorious melodramatic extravaganza "Antivivisection" despite the recent striking failure there of the much more serious entertainment entitled "Antivaccination"; the two companies are not altogether identical, but similar at least in their general attitude of opposition toward our public medical institutions.

The bill which these hysterical or else sciolistic people have presented to the Legislature for hearing before a committee is somewhat less drastic and so less harmful than those of former years, it being obviously its framers' intention, clearly avowed in part, to use it chiefly as the entering end of a wedge which as soon as possible shall entirely prohibit animal experimentation. The petitioners base their bill on the possibility that abuses in vivisection may exist in the future, which possible abuses are to be severely punished, as indeed were meet, when they shall have been detected by the "agents of the societies for the prevention of cruelty to animals." The counsel for the petitioners, in a recent session, said, "It is not necessary for our purposes to show that abuses do exist. It is enough to show liability to abuse." To this deliberate statement of policy the chairman of the legislative committee naturally objected very strenuously, and, indeed, it is the most striking feature of all these misguided hearings that, despite the openness of all physiological laboratories (except to newsboys and intoxicated persons perhaps), *no evidence of any cruelty whatever has ever been presented and substantiated* The committees of the Legislature of the Commonwealth visit the laboratories, see exactly what is going on therein, and forthwith unanimously give the petitioners prompt "leave to withdraw."

The two paragraphs of this year's proposed bill which are most objectionable to the cause of medical research read as follows: "Every animal subjected to such experiment shall be killed immediately upon the conclusion thereof and while under the influence of the anesthetic"; and "The authorized agents of any society for the prevention of cruelty to animals incorporated under the laws of this Commonwealth shall be permitted to enter any place registered as required by Section 1 hereof, at any time, without previous notice, and to take the name and residence of any person found therein." (The Society for the Prevention of Cruelty to Animals, however, has little or nothing to do with this movement, fully aware as it is through its agents that no cruelty exists.) The former of these requirements would, if it were law, prevent the legal performance of some of the most important of experimental operations, as any fairly informed person will instantly appreciate. The latter of the quoted paragraphs would make all scientific surgical experiments at least impracticable, since it would render any such operation liable at any time to gross interruption through the noisy entrance or ignorant supervision, or both, of men such as these societies do and would employ as their agents—retired policemen, superannuated janitors, or other unsympathetic laymen hired for a purpose at fifty dollars a month. What physiologist or pathologist or chemist would care to begin a research consisting perhaps of a long series of delicate surgical operations, likely as not with the simultaneous management of a complicated recording apparatus, under such conditions as these!

Thus the present proposed bill practically would prevent, if passed, what are perhaps the most valuable researches of our modern physiology, etc., while it would put into practice a system of espionage quite at variance with the noble standard of the profession of medicine. We shall look for a denial to this petition at least not less prompt and emphatic than its predecessors have received.

THE BLACKWELL'S ISLAND PHTHISIS HOSPITAL.

The much-discussed question of the care of the City's indigent phthisis cases has for some time past agitated the lay and medical journals, but until recently nothing tangible has been accomplished. It would seem that the problem were either outside the realm of possibility, or that the City officials were not sufficiently aware of the urgent necessity for active measures.

The new Commissioner of Public Charities, Mr. Homer Folks, has made the first move in the proper direction in transferring the tuberculous patients of the charity hospitals to one of the old buildings on Blackwell's Island, which was formerly occupied by the Manhattan State Hospital for the Insane. This, however, is but a prophylactic measure for a disease which in the past has wrought havoc among the non-tuberculous inmates of the various institutions devoted to the care of the sick poor. It has no bearing on the cure of the transferred patients, who were much better cared for in their former surroundings, in which they had the cheering influence of the other patients. In their new quarters they are in small cell-like rooms, shut off in many instances from the sunlight, to await the coming of the end.

This old insane asylum, as might naturally be conjectured, was not designed for the purpose it is now to serve, but was constructed for the care and restraint of the insane. Many of the rooms were really cells with barred windows and paneled doors. Such surroundings can only add to the already depressed mental condition of the tuberculous sufferers.

Commissioner Folks has asked the Board of Apportionment for eighty-eight thousand dollars to renovate these buildings, that they may be made suitable for the treatment of incipient cases as well as to furnish a home for the already doomed ones. Forty thousand dollars of this amount will be expended in the actual renovation of the building and in the construction of glass pavilions where the incipient cases can be scientifically treated by the latest approved methods.

It is the intention to devote the sum of five thousand dollars toward the remuneration of an efficient corps of doctors and nurses. To use a Hibernian hyperbole, such a proposition would be amusing were it not absolutely ridiculous. In the pavilion now occupied there are only one hundred cases. When the other four buildings are renovated there will be accommodations for an additional four hundred patients, making the total capacity of the institution five hundred. With a physician to every hundred patients and a nurse to every twenty, at least five physicians and twenty nurses must be employed. The City pays its nurses on an average fifteen dollars a month. The twenty nurses would then so nearly consume the five thousand dollars that the physicians would have to contribute their valuable services for sweet charity. The Department will encounter no little difficulty in finding men who are willing to subject themselves to the constant danger of infection in return for the reward of board and lodging and one afternoon a week.

It is estimated that the five hundred patients can be maintained at a cost of eighteen thousand dollars annually. This is to include board, lodging and clothing. If the patients are to be cared for after the fashion of the rest of the City's hospital charges, the sum proposed will be more than sufficient. Congratulations are due to Mr. Folks for the interest he is taking in this matter. He is the first of his line to take up arms for the protection of the pauper "lunger" by endeavoring to plan and carry out some practical measure for his care and cure.

Judging from the experiences of previous charities commissioners who have made efforts to institute changes along scientific lines, the application for this modest sum of eighty thousand dollars will meet with opposition. It is probable that the knowledge of this fact has led the Commissioner to ask for the small sum, which is obviously inadequate.

While we cannot expect the Board of Charities to grant more than this, we at least hope that Mr. Folks will get the whole sum required. For with such an amount at hand he will be able to create the nidus of a future model phthisis sanitarium; and the old adage, now too true, that only the rich may hope to recover from the deadly grasp of the tubercle bacillus will then happily become a saying of the past.

ANIMAL EXPERIMENTATION.

A little book which cannot fail to be of interest to all medical people, to the Massachusetts legislators and to their constituents, indeed, to every person interested in medical progress (and who that is mortal is not one of the latter class?), was recently published in Boston.

The title in full of this widely-useful volume is "Animal Experimentation: A Series of Statements Indicating Its Value to Biological and

Medical Science." Dr. H. C. Ernst is to be thanked for the publication of this collection of expert opinions, he having collected them and attended to their appearance in a form available to the public.

The quotation of a considerable part of the Introduction will make clear the sources of the material of this book and the reasons for its existence. "The following are the statements of various remonstrants to proposed legislation to further restrict experimentation upon animals for medical and biological purposes in the Commonwealth of Massachusetts. They were called out at the legislative hearings upon this subject in the spring of 1901. The agitation in favor of such further restriction has been carried on for several years, and the views of the remonstrants are nowhere to be found in print. Many of the friends of research have expressed a wish to have some document to which reference may be made for the facts of the case, and it has therefore been decided to publish this book . . . It is hoped that the statements that follow will be of value in placing the matter of experimentation upon animals, for purposes of teaching and investigation, in a clearer light before those interested in the subject."

Among the competent and noteworthy opinions quoted are those of Bishop Lawrence, President Eliot of Harvard, President Capen of Tufts, President Hall of Clark, and Drs. H. P. Bowditch, Wm. T. Sedgwick, J. S. Kingsley, M. H. Richardson., J. J. Putnam, W. T. Porter, W. T. Councilman, Theobald Smith and H. C. Ernst. Besides these names, known over the land, sixteen others, clergymen, teachers, surgeons, physicians, all notable in the ranks of the sincere and trustworthy, contributed to this unique volume, destined to have great influence in combating this particular neuropathic menace to the public weal.

Among the more notable contributions are the remarks of Prof. Sedgwick of the Massachusetts Institute of Technology, Prof. Kingsley of Tufts, and Profs. M. H. Richardson and Theobald Smith of Harvard. Professor Porter of the Harvard Medical School supplies twenty-four pages—which constitute in themselves a powerful document, an article of the precise sort which, wide spread in the magazines of large circulation, would soon do much to educate an apathetic public so that even in Massachusetts (often deemed the home of the manifold antimania) this annual annoyance to legislators and to scientists alike would soon die out in the face of a public opinion sufficiently interested to declare itself. The séances of the present year's "agitation" have already begun at the State House on Beacon Hill.

ECHOES AND NEWS.

NEW YORK.

Brooklyn Medical Club.—Professor E. W. Scripture of Yale University will deliver the annual lecture of the Brooklyn Medical Club at the Medical Library Building, 1313 Bedford Avenue, March 24, 1902, at 8.30 p.m. His subject will be, "A Chapter from the New Psychology; Recent Researches on the Voice," with the exhibition of lantern slides, experiments and other illustrations.

A Sound Position.—We approve most heartily of the following comment made by the "Sun" of last week, and might well hope that all of our "lay" contemporaries were as rational in their editorial expressions regarding medical topics: "One Cadin, an Assemblyman, has introduced a bill for the creation of a State commission 'to investigate into and report on the history, nature and pathology of smallpox and also of vaccination as a preventive of the disease.' There is no excuse for pandering in this fashion to ignorance and quackery. There is no doubt as to the efficacy of vaccination in limiting the ravages of smallpox. It has stood the test of a century. It has been accepted by the great mass of the public as well as by men of science. An investigation of this sort can only tend to confirm those who are prejudiced in their folly. Let us not have any legislation of the sort which has taken down the bars of England, for example. The individual has the right to hold all sorts of silly views. But he has not the right to become a danger to his neighbor."

Compulsory Vaccination Law not Wanted.—At a meeting of the Board of Health last week its three members, Dr. Lederle, Dr. Doty, and Police Commissioner Partridge being present, a resolution was passed declaring against compulsory vaccination in any form. The resolution stated that in the opinion of the Board the passage of any bill requiring compulsory vaccination was unwise and uncalled for. The members were agreed that the measure now in the Senate and Assembly Committees was special legislation against all local boards of health and implied that these local boards were incapable of conducting their own department. The members believed that vaccination should be taught not by force but by education, and that it could not afford to have the present harmonious relations between the Board and all classes in the city upset by any mandatory legislation at Albany.

Dr. Knapp's Seventieth Birthday.—Dr. Herman Knapp celebrated his seventieth anniversary Monday last. Dr. Knapp was the founder of the New York Ophthalmic and Aural Institute. He was born in Prussia in 1832, and was graduated from Giessen University in 1854. He was professor of ophthalmology at the University of Heidelberg from 1864 to 1868, and since 1888 has held the same position at the College of Physicians and Surgeons in this city. It was at Dr. Knapp's suggestion that the institute of which he was the founder will move from its present location, No. 44 East Twelfth Street, to the northwest corner of Sixty-fourth Street and Central Park West. Of the new plans for the new institute it is said that the trustees have given their consent to his proposal that the institute should be moved and should be modernly

equipped. The members of the Board of Trustees have subscribed $100,000, which will make one-half of the purchase price of the lot on the Sixty-fourth Street corner. About $400,000 more is needed to build the new institute. This amount must be raised by voluntary contributions. The amount should be subscribed and the building constructed in three years.

Board of Managers of Craig Colony.—Governor Odell has nominated to be managers of the Craig Colony for Epileptics: Dr. Pearce Bailey of this city, Mary E. Joy of Syracuse, Abbot Law Dow of Brooklyn, Jeanette R. Hawkins of Franklin County, George L. Williams of Erie County, and James H. Loomis of Wyoming County.

Trustee of State Hospital for Tuberculosis.—Dr. John H. Girdner of this city was nominated to be a trustee of the State Hospital for the Treatment of Incipient Pulmonary Tuberculosis, to fill the vacancy caused by the resignation of Norman S. Dike.

Appointment of Dr. Kerley.—Dr. Charles Gilmore Kerley has been appointed attending physician to the New York Infant Asylum, West 61st Street and Amsterdam Avenue.

New Claimant for Journalistic Honors.—The "American Medical Journalist" is the title of a newly-launched periodical devoted to the interests of medical advertising. The first number is bright, entertaining and full of instruction. If the succeeding numbers are as interesting as this one, we predict success to the new enterprise and wish it prosperity.

PHILADELPHIA.

Visiting Nurse Society.—At the sixteenth annual meeting of the Philadelphia Visiting Nurse Society, held March 14th, all the officers were reelected. During the past year two new branches have been opened, one in Germantown and the other on South Tenth Street, there now being the central office and four branches. A fifth branch in West Philadelphia is contemplated. The Society aims to give the poor and those of moderate means the best nursing obtainable, the charges for daily visits being only nominal.

Eye Hospital in Straitened Circumstances.—The Wills Eye Hospital which is under control of the City Trusts is in need of repairs, new instruments, etc., and the income from the estate is not sufficient to meet even the running expenses. It has been necessary to reduce the number of patients and as a consequence the hospital is not doing the work it was intended to accomplish; $5,000 is needed for immediate use.

Ground Broken for Hospital Addition.—Ground was broken March 13th for the proposed addition to the Samaritan Hospital. The addition is for the two-fold purpose of supplying needed room for the growing demands upon the hospital and of furnishing facilities for instruction to the students of the medical department of Temple College.

Dr. Morse Visits Philadelphia.—Dr. John Lovett Morse, of Boston, addressed the Pediatric Society March 11th on "Some Diseases of the Kidneys and Bladder in Infancy." A reception at the Aldine followed the address. Dr. Morse also addressed the students of Jefferson Medical College during the day.

Spring School of Medicine to be Established at the University of Pennsylvania.—A matter of no small interest to the medical profession of the Eastern, Middle and Southern States, is the decision on the part of the Medical Department of the University of Pennsylvania to inaugurate, during the coming spring, a series of courses for practitioners of medicine. This movement has been under contemplation for some time and is just now to be consummated. The reasons for and purposes of the spring school are set forth in the last report of the Provost in these words: "The many advantages possessed by a large medical school in promoting and teaching the science and art of medicine, make it desirable that others than undergraduate students should be admitted to its benefits. There exists a body of physicians who, either because their professional lives are spent away from active medical centers or because of original defects in their training, find it difficult or impossible to keep in touch with the progress of medicine. For such of these physicians as may desire to extend, complete, or revive their past training, a graduate course of study would be of great advantage. The medical school possesses, moreover, the equipment needed to supply such instruction. The facilities provided by hospitals are at command throughout the entire year, and those of the laboratories may also be made available." Courses of instruction will be offered in medical chemistry, anatomy, physiology, bacteriology, pathology, clinical medicine and surgery, gynecology, ophthalmology, otology, dermatology, laryngology, and other specialties. All the courses have been designed to be practical in character and to fit the abilities and purposes of the practitioner of medicine. Summer schools for post-graduates in medicine are conducted in connection with several other medical schools, but with one or two exceptions the faculties take a minor part in the teaching, this work being left to the junior staff. This fact is significant in view of the prominent part to be taken by the Medical Faculty of the University in the proposed spring school.

CHICAGO.

Visiting State Institutions.—Dr. John R. Neely, Medical Director of the Institutions at Dunning, is visiting the State institutions throughout the East, particularly Boston, New York and Ohio. He is in quest of information in regard to the way similar institutions are operated before deciding upon certain changes which he has in contemplation at Dunning. After his return Dr. Neely will make recommendations to the County Board, and probably make certain demands of the Civil Service Commission. He will have entire charge of the professional end of the institution, separating the business from the professional work of the physicians and nurses. This has been thought advisable by the County Board, and will doubtless increase the efficiency of the institution.

Dr. Murphy Honored.—The highest honor in the gift of the University of Notre Dame and perhaps the most highly-prized honor that can be attained by a Catholic layman in America, namely, the Laetare Medal, has been conferred this year on Dr. John B. Murphy, of this city, in recognition of his merit as a Christian gentleman and his great work in medical science.

Trust Deed to Secure a Loan.—The Hospital of the Holy Family of Nazareth has given a trust deed to secure a loan of $50,000 for five years. The building is nearing completion, and when completed will have cost, it is said, in the neighborhood of $400,000.

Promotion of Dr. Shepard.—Dr. John L. Shepard, Acting Assistant Surgeon, U. S. A., has been made first lieutenant and assistant surgeon in the regular establishment.

Resolution on the Death of Dr. Fenger.—At a meeting of the Physicians' Club of Jacksonville, the following resolution was passed: "*Resolved*, That in the death of Dr. Christian Fenger, of Chicago, the medical profession has lost a member whom it delighted to honor; one whose work, like his life, was confined to no one land or tongue, but was as cosmopolitan as the fraternity he honored with his name; a great surgeon

pathologist and teacher; one of whom it might fittingly be written, *Doctores docuit.*"

Chicago Medical Society Adjourns out of Respect for Dr. Fenger.—This Society met at the usual hour, March 12th, after which a motion was made that a committee be appointed to prepare for a memorial meeting in honor of Dr. Fenger, to be held some time in April. The Society then adjourned, without taking up the formal program.

Importance of Rickets in Girls from an Obstetrical Standpoint.—Dr. Charles S. Bacon read a paper on this subject before a recent meeting of the Chicago Academy of Medicine. Rickets is a common disease of infancy. Its most serious results so far as girls are concerned do not manifest themselves till the child-bearing period. It is estimated that from 3 to 7 per cent. of all women have contracted pelves due to rickets. Cases are given to illustrate the importance of a pelvic contraction of one to two centimeters. Concerning the etiology of the disease, the effects of insanitary surroundings, improper food, gastro-intestinal disease are acknowledged, but the essence of the trouble is not yet determined. Among the food deficiencies, lack of fat is undoubtedly the most important. The most common pelvic deformity is the simple flat pelvis. This is caused by the weight of the trunk when the child is in the sitting or standing position. The soft bodies of the sacral vertebræ are crowded forward between the wings of the sacrum contracting the anteroposterior diameter. The strong sacro-iliac ligaments pull backward the posterior margins of the ilia and because of the anterior fixation of these bones at the symphysis the transverse diameter of the pelvis is increased. The indications for the treatment of rickets in its acute stage are to control the disease process as soon as possible and to prevent the pelvic deformity. The disease process is corrected by dietetic and hygienic management. Gastro-intestinal infection is overcome and the child placed in as good sanitary surroundings as possible. Fat, which is often lacking in the diet, is given, often in the form of cod-liver oil. The question of the prevention of pelvic deformity is new. Its importance has been overlooked by orthopedists. It is very difficult to keep the child in the horizontal position. If it is possible to devise apparatus which will take the trunk pressure from the sacrum it would be a valuable device.

Relation of Evolution to Infection, with Special Reference to Venereal Diseases.—In a paper on this subject, Dr. G. Frank Lydston presented in detail his views on the variability of pathogenic organisms and their effects, explained by their tendency to revert toward a less highly specialized form (atavism), a principle well understood by students of evolution. The general rule governing such variation may be stated in the formula: The tendency to variation of any species is in inverse ratio to its degree of specialization by evolution. Micro-organisms, being among the lowest and simplest forms of life, are little specialized, relatively, and are consequently subject to wide variations in their pathogenicity. The gonococcus is not always the same organism in its capacity to cause a specific urethritis. Indeed, the gonococcus may be found in the urethra without its having ever excited any inflammatory reaction; in other words, "the gonococcus is not always the gonococcus." The same fact is true of the diphtheria bacillus, the diplococcus of pneumonia and numerous, if not all, other pathogenic micro-organisms. Every disease germ is subject to modification in its disease-producing capacity by its environment, by the suitability of the soil upon which it grows, whether in test-tube culture, or in the tissue soil of its victim. This tissue soil in any individual may be so unfavorable, by reason of a natural immunity or resistance possessed by him, as to render the germ relatively or absolutely harmless. One has to recognize, then, in the power of germs to produce disease, the two factors of the variability of germ species, and the resistance offered to them by unfavorable tissue soil in the individual. The interrelation by these two factors determines the degree of infection. This variability in the capacity of germ species to cause disease has not yet been grasped by the medical profession, though bacteriologists and pathologists are beginning to reckon with it. There is nothing novel or iconoclastic in accepting this doctrine. It is simply the application of the principles of evolution and involution to germs, and to germs these principles apply with particular force because germs are little specialized and therefore poorly fixed species.

CANADA.

Ontario Medical Council.—Session of the Ontario Legislature has closed, but there will be no changes in the composition of the Ontario Medical Council made this year. The proposed amendment of Dr. Jessop to the Ontario Medical Act has not materialized. Instead of recommending its adoption, the special committee of the House to which it had been referred presented a report on the matter which has been received and adopted. This report provides that the Government shall undertake to submit, to the medical practitioners of Ontario next fall, questions, answers to which will afford definite information upon those points which have now been so long in dispute, namely, the constitution and representation of the Council. The answers will then be submitted to the Government and, should there appear to be any decided call for a change, the matter will be acted upon by the next Parliament. The report also proposed that those practitioners who had neglected or refused to pay their annual assessments to the Council should continue to exercise their franchise should occasion arise the same as those who had paid their fees.

New Civic Hospital for Montreal.—The Montreal City Council has at last, after long delay of many years, decided to erect a new Contagious Diseases Hospital. The question was brought up in Council last week by the reading of a letter addressed to that body by the Roman Catholic Dignitary, Archbishop Bruchesi. The new hospital will be erected on Fletcher's Field, will be for infectious diseases other than smallpox, the present Civic Hospital being kept for that purpose, will cost $50,000, and will be strictly non-sectarian. The Catholic population of the city wanted two hospitals, one for themselves and one for the Protestants, but the City Council was almost unanimous for a non-sectarian institution. The Archbishop states he will not accept for his people a non-sectarian hospital.

Chances for the American Medical Students at McGill.—According to a circular letter recently issued by the Registrar of the Medical Faculty of McGill University, Dr. Ruttan, there are some sixty original vacancies in the United States Army, owing to extensions of the Army Medical Service system. These will be filled by competitive examination and Dr. Ruttan wishes that the American medical students at McGill be given a chance at these positions, as there are a number of students at that famous university who hail from the Republic to the south of us. It is understood that several of these will compete.

Victorian Order of Nurses.—In Ottawa last week the Board of Governors of the Victorian Order of Nurses held their annual meeting. The reports submitted showed that the most important work done in connection with the Order during the past year had been the collection of $25,000, raised almost entirely by

the efforts of Lady Minto alone, for the Lady Minto Cottage Hospital Fund. Of this sum some $6,000 has already been spent on the construction of hospitals in the Canadian Northwest Territories, and a further sum of $8,000 has been set apart for similar purposes. During the past year two new branches of the Order have been established, one at Pictou, N. S., and one at Dauphin, Man. In Pictou a wing of the Marine Hospital is now supplied with nursing service by the Victorian Order, whereas before no nursing was available. The financial report stated that there was some falling off in the endowment fund of $2,500 which is collected annually.

Tuberculosis in the Province of Quebec.—The Recorder of Vital Statistics for the Province of Quebec, Dr. Paul E. Prevost, states that in the year 1897 there were 3,079 deaths in that Province from tuberculosis; in 1898, 2,876; in 1899, 3,085; in 1900, 3,015. These figures show the death-rate from tuberculosis to be three times that of any other disease, except infantile diarrhea. There occurred in Montreal alone 791 deaths from consumption in 1900, which was 10.32 per cent. of the deaths from all causes. The whole subject of tuberculosis is to come up for discussion in the Legislature of the Province. A member of that body has asked that the Government produce all correspondence and documents in its possession bearing on tuberculosis, its prevalence, and treatment. Efforts will be made to secure financial aid for sanatoria the same as is provided for in other Provinces of the Dominion, namely, Ontario and Nova Scotia. Quebec Province has a good sanatorium, the Laurentian, but it does not receive any aid from the Provincial Government. This is situated at St. Agathe des Monts, a short distance from Montreal, and is superintended by Dr. Arthur J. Richer of that city.

Proposed Dominion Medical Council.—When Dr. Thos. G. Roddick, M.P., closed his address last week in the Canadian House of Commons, in moving the second reading of his bill for a Dominion Medical Council, he received the applause of both sides of the House. A member from Quebec objected to the second reading of the bill as he doubted the constitutionality of the measure, and some one also stated that Laval University was opposed to the principles of the bill. The Premier, Sir Wilfrid Laurier, stated that as Dr. Roddick had asked that the bill be referred to a special committee of the House after it had received its second reading, he would not then oppose it. This action of the Premier is considered in some quarters to be a hint that when the bill comes before the House for its final reading, he will instruct his followers to oppose it. If that be the case the long and arduous labors of Dr. Roddick in the cause of the medical profession in Canada will have proved futile. As the bill now stands it provides for a Council of thirty-nine members, as follows: Eight from the Province of Quebec, Laval University to have an additional College representative; nine from Ontario; four each from Manitoba and Nova Scotia; three each from New Brunswick, British Columbia and the Northwest Territories; two from Prince Edward Island; three from the Homeopathic body. The proposed bill has received the endorsation of all the Provincial medical societies and of the national medical organization, the Canadian Medical Association. Surely the Dominion Parliament has the power to elevate the medical profession of Canada and give it a national standing.

GENERAL.

Post-Graduate Study in Baltimore.—The College of Physicians and Surgeons of Baltimore has instituted a series of post-graduate courses in medicine, surgery, medical and surgical specialties and in laboratory work in pathology, bacteriology and pharmacology. This is a new departure for this institution.

Prophylaxis of Tuberculosis.—Among protective measures proposed by the Association for Defence against Tuberculosis in Milan is the general distribution of cards bearing the words "Do not expectorate upon the ground." It is also advised that such a placard be exposed in the churches.

German Surgical Congress.—The Thirty-first Congress of the German Society of Surgeons will be held in Berlin, April 2-5, 1902.

The "Cleveland Medical Journal."—The first number of the union of the "Cleveland Medical Gazette" and the "Cleveland Journal of Medicine" has been received and we congratulate the profession of Cleveland on its splendid appearance. As an exponent of a united profession in the city of Cleveland it is also the more welcome to the ranks of high-class medical journalism. Long may it prosper and the principles of its incorporation prevail.

Harvard Medical School.—A gift of $250,000 from Mrs. Collis P. Huntington, announced March 13th, more than completes the sum of $765,000 required to secure the $1,000,000 offered by John D. Rockefeller of New York for the enlargement and endowment of the Harvard Medical School. Mrs. Huntington's subscription is specifically for the erection of a building in memory of her late husband, to be called the "Collis P. Huntington Laboratory of Pathology and Bacteriology." With Mr. Rockefeller's gift and the pledge made by J. P. Morgan last June to give three buildings at a cost exceeding $1,000,000, an aggregate of $2,821,225 will be available for the use of the Medical School.

National Health Board.—The bill to change the name and increase the efficiency of the United States Marine Hospital Service, favorably commented on previously in the editorial columns of the Medical News, was favorably reported to the Senate by the Committee on Public Health and National Quarantine, March 15th. It changes the name to the United States Health Service. The bill provides for creating an Advisory Board for conducting investigations by the Hygienic Laboratory, and provides also for the creation of a National Board of Health, to consist of one delegate from each State or Territorial Board of Health, to meet for conference when upon the request of five of these boards the interests of the public health can be promoted thereby. The uniformity of registration of mortality, morbidity and vital statistics is provided for by authorizing the Surgeon-General of the United States Health Service after conference with the State boards to prescribe forms for their collection and compilation. In the time of threatened or actual war, when the commissioned officers of the United States Health Service are brought into official relations with the medical officers of the Army or Navy, they are to have rank with and after those of similar rank in those services.

Obituary.—Dr. J. Baxter Upham died last week in New York, at his home, after an attack of indigestion. He had been ill for two days. He was eighty-two years old and was born in Claremont, N. H. He was graduated from Dartmouth College in 1842 and from the Harvard Medical School in 1848, practised medicine in Boston until the outbreak of the Civil War, and then enlisted to serve through the war as a surgeon-major under Gen. Burnside. After the war he resumed practice in Boston. In 1880 he came to New York and formed a copartnership with Austin Corbin in the Corbin Banking Company. Two years later he retired on account of ill health. He was a delegate to the International Medical Congress.

New Buildings for Medical School.—The Columbian University of Washington, D. C., has just completed plans and let contracts for the erection of a new hospital building and a new medical and dental school on H Street, N. W., between 13th and 14th Streets. The buildings will be Colonial in style, the hospital having a frontage of 60 feet to the south; the medical school building, 50x144 feet, will be five stories high. Large new laboratories thoroughly equipped for modern work and well-lighted lecture- and reading-rooms will afford excellent facilities for medical and dental students.

CORRESPONDENCE.

CURABILITY OF TUBERCULOSIS.

To the Editor of the Medical News:

Dear Sir:—Major D. M. Appel, U.S.A., the Commanding Officer of the Government Sanatorium for Tuberculosis at Fort Bayard, New Mexico, has been widely quoted in the lay press as saying, in an interview with a newspaper representative at Albuquerque, New Mexico, that "tuberculosis is curable in every stage." If true, this statement is fraught with the greatest interest to the human race; if not, the error should be at once corrected. If Major Appel has been rightly quoted, and the words "you may quote me," which precede his statement, would indicate that he has, then, unquestionably, he spoke in good faith. It is far from my purpose to attribute to Major Appel an intention to mislead or equivocate, but that his utterance is misleading, I am thoroughly convinced; and that it requires explanation and qualification, I am also convinced. No one realizes more keenly than I the efficacy of the climate of New Mexico in tuberculosis, and I am sure that nothing but the truth is necessary to substantiate New Mexico's claims. Let us suppose that a patient, in a late stage of tuberculosis, lying in his bed in St. Luke's Hospital in New York, has his attention directed to the issue of the *New York Herald* in which one whose position lends authority to his words gives utterance to the statement that "tuberculosis is curable in every stage." Such a one receives renewed hope. He is possessed by the idea that he may, after all, recover; and, if it can in any way be managed, he will make his way to New Mexico, seeking the life-giving conditions which this statement justifies him in expecting to find there. Will he be disappointed? My whole experience says that he will; and that, in the majority of cases, such patients will die far from home and friends. It is in just such cases as this that such a statement may do incalculable harm.

We, most of us, remember the enormous influx of tuberculous invalids into Berlin which followed the premature announcement of Koch's tuberculin. They went as to a Mecca, where human ills and pains were sure to be assuaged. Were they disappointed? We all know the answer to that question. Is there to be a like immigration of incurable sufferers into New Mexico? I trust not. And, in a measure, to prevent such an occurrence, I feel it my duty to urge that Major Appel's statement be not taken literally, and to add my own interpretation of what I believe to be the facts. If called upon for an opinion as to the curability of tuberculosis in our climate, I should not hesitate to say that here, by rigid adherence to the phthisiotherapeutic principles of Brehmer, results can be obtained which are unsurpassed and which prove a revelation to the phthisiotherapist who works in an unfavorable climatic environment. And, further, that more patients in the so-called advanced stages of consumption recover here, at least relative health, than anywhere else; but the statement that tuberculosis is curable in every stage is not substantiated by facts. From this, it should not be implied that a patient in an advanced stage is necessarily incurable. I have before me the first annual report, made by Major Appel of the Government Sanatorium at Fort Bayard, in which, under the head of "Cases Presenting Permanent Febrility with Tubercle Bacilli in the Sputum," he says: "Of the forty-eight patients in this class, twenty-four, or 50 per cent., died; twenty, or 42 per cent., were discharged unimproved; and four, or 8 per cent., improved in general condition. None was cured or discharged convalescent." Of this same class, fourteen patients were under treatment at the time this report was written. Their conditions at that time, according to the report, were as follows: "Nine, or 64 per cent., are unimproved; four, or 28 per cent., improved in general condition; and one is convalescent." Under the head of conclusions regarding discharged cases of this type, is the following: "With a death-record of 50 per cent. and a hopeless prognosis in the remainder, the futility of climatic treatment for this class is unquestionable."

The foregoing quotations and the statement "that tuberculosis is curable in every stage" cannot be reconciled, and it would appear that the recent, widely-quoted statement of Major Appel is misleading and calculated to do great harm.

E. S. Bullock,
Medical Director,
St. Joseph's Sanatorium.

Silver City, New Mexico, March 8, 1902.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

OBESITY—OLD STANDING PARALYSIS—DYSENTERY—MAMMARY CANCER—PAPILLOMA OF THE VAGINA—VACCINIA.

The month of January saw the British Societies very active. Among the many valuable discussions held the following are worthy of attention.

T. Lauder Brunton opened a discussion on the nature and treatment of obesity, which he defined as a condition in which the fat is very much greater than normal and sufficient in quantity to become inconvenient to the patient. His definition was made accurate and illustrated by the following facts. The average height of the English is five feet eight inches, and weight one hundred and fifty-four pounds, remaining constant until about the fortieth year, when a gradual increase in weight begins. According to Van Noorden this increase might reach 15 per cent. and still remain within what should be called the normal limit. If it reached 30 per cent. the person became "stout," between 30 and 35 per cent. "too stout," from 35 to 50 per cent. "moderately obese," above 50 per cent. "very obese." The accumulation of fat occurred usually in the subcutaneous tissue, omentum, around the heart and kidneys, consisted chiefly of mixtures of different proportions of glycerin, united with fatty acids. These mixtures vary in different animals, but each animal keeps its own fat nearly at a constant standard, although it might feed on other animals having a different kind of fat. This not altogether the case. As an old nurse of S. Weir Mitchell has remarked, some fats are fast, some fats are fleeting, but cod-liver oil fat is soon wasted. This has been proved scientifically, for in animals fed on rape-seed oil, this oil can be detected unaltered in the tissues. The accumulation of fat in man depends first on how much fat or fat-forming food is taken into the body, and second upon how much food is consumed in the ordinary processes of life. Either

of these causes may act separately or both together. Fat is, however, formed from different kinds of food, even if fat itself is not contained in them, such as the albuminoids, and carbohydrates. The body is able to make food with difficulty from albuminoid materials, such as lean meat, but with considerable ease from the carbohydrates, like sugar and starch. Therefore the tendency to lay on fat is determined by the nature of the food. The tendency to the accumulation of fat both in men and animals after the removal of the testes and ovaries is well known. Loewy and Richter found that in dogs the administration of extract of the ovaries has no effect if these organs are in the body of the animal, but increases oxidation in animals from which the ovaries or the testicles have been removed. It is usual to distinguish two forms of obesity, the plethoric and the anemic. Instances are known in which plethoric obesity was benefited by violent exercise, which may or may not be accompanied by a peculiar diminution of the mental activity. Anemic obesity is most frequent in women. Diseases which lessen activity tend to cause obesity, especially chronic nephritis on account of the languor which it produces. With regard to the treatment of obesity, as the cause of the condition either in severe or slight form consists in taking in more fat-making food than the body can burn off, the treatment naturally consists in limiting food, both in quantity and in quality, and in increasing the combustion by accelerating the circulation. Active muscular exercise is certainly the best means of carrying out the latter point, but in severe cases the patients cannot take muscular exercise. In these massage is exceedingly valuable, but is alone not sufficient and must precede rather than supplant active exercise. The amount of food should be lessened in general by insisting that solids and liquids should be taken at different times. Many are apt to wash down food, especially farinaceous food, without much chewing. If this starchy food were made dry, like toast, rusk, and biscuit, the quantity taken without the aid of fluid would be much less. Digestion in the stomach has less tendency to form fat than when the digestive process is carried on in the intestine. This gives a good index of the kind of food most suited to these patients. It is necessary to secure active elimination of the products of combustion. Thyroid extract increases tissue change and may be used to decrease obesity. But diet and exercise are safer and in the long run more reliable.

J. P. Stewart and Mr. Tubby, at the Clinical Society of London, January 24, 1902, showed a case illustrating a new method of treating old-standing paralysis of the upper root of the brachial plexus. The patient was a man fifty-seven years old, who had fallen on his shoulder and head two years ago, with resulting unconsciousness for an hour afterward and paralysis of the left arm upon recovery. After treatment at various hospitals without benefit he was admitted to the Westminster Hospital under the care of W. Murrell, showing marked paralysis and atrophy of the left shoulder and upper arm, with total loss of electrical excitability in the deltoid, infraspinatus, biceps, brachialis anticus, and supinator longus muscles, with consequent inability to adduct the arm or to flex the elbow. There was loss of sensation along the outer side of the upper arm and forearm, which subsequently disappeared. These symptoms pointed to a paralysis of the upper root of the brachial plexus of the Erb-Duchenne type. Twenty months after the accident Mr. Tubby transferred part of the triceps and fixed it into the biceps, with the object of restoring the power of flexion at the elbow, and a month later an attempt was made to restore power to the deltoid. Since the operation the transplanted portions of the muscles have been assiduously massaged, and the faradic current had been applied. There had been great improvement in the movements and in the utility of the limbs. The patient could flex the elbow fairly well and during this act the transplanted part of the triceps could be felt in front of the elbow and both faradic and galvanic excitability had returned. He had not yet recovered power to adduct the arm, but the transplanted part of the pectoralis major could also be felt to harden. At first there was a total loss of excitability both to induced and galvanic currents, but three months after the operation, the galvanic excitability returned and six months after, faradic reaction had become apparent.

Dr. Washbourne read a paper at the Epidemiological Society January 17, 1902, in which O. Richards had taken a share in authorship. It dealt with South African dysentery and its relation to that in asylums. Three types of the disease were described, alike marked by bloody and mucous stools, fever, tenesmus, and abdominal pain in different degrees. The normal type, with its febrile stage, lasted a week with the temperature between 101° in the morning and 104° F. in the evening, with a thick white fur on the tongue, and with the symptoms subsiding in a week or becoming chronic, unless death occurred in the first week from the fever itself, or subsequently from the perforation, peritonitis, or exhaustion. The second type comprised mild non-febrile cases soon recovering, and the third was distinguished by the pyrexia which continued for three or four weeks, with perhaps an entire absence of blood and mucus, the bowels being either loose or constipated. The cases were often taken for enteric fever, but were doubtless due, like the typhoid form of scarlet fever, to secondary septic invasion. The mortality in South Africa had been low. Only about 1.86 per cent. had died. Liver abscess was rare. In one case the base was full of streptococci and bacilli, thus differing from the usual tropical form. The cecum and rectum were most affected, the lesions being thickening of the walls with hemorrhages and ulceration. Perforation was the most frequent cause of death. No amebæ had been found in the contents of the intestine or in the abscesses themselves.

R. J. M. Buchanan, at the Liverpool Medical Institution, January 23, 1902, referred to the subject of mammary cancer in the light of heredity on the one hand and of the parasitic theory on the other. In view of the transmission of minute details of conformation and disposition from parents to children in heredity, he thought it a proper consideration that the peculiarities of cell reproduction might also be transmitted, and that the characteristics of cell structure as seen in cancer growths might in some way be associated with stages in karyokinesis. He showed a specimen of *tradescantia virginica,* showing the various stages of cell division and drew attention to the fact that nuclei of many cells at a similar stage presented structures closely resembling cancer bodies. He referred to the variations of the centrosome in cell division and to the possibility that cancer bodies might be of centrosomic origin and expressive of an exaggerated or abnormal condition of the centrosome. The question of heredity transmission he considered applicable both to the developmental and parasitic theories. In the former as reproducing special peculiarities in the life histories of cells, in the latter as reproducing a light susceptibility in a high degree of parasitic invasion. Referring to the parasitic theory in relation to the etiology of cancer, he stated that his endeavors to cultivate the so-called parasite proved unsuccessful, and that he was not fully satisfied with the results of other observers in view of the grave possibilities of contamination and the lack of evidence that inoculations of organisms isolated from

cancer have reproduced this disease. This might be due to differences in experimental technic, and, apart from the purely experimental method to isolate and reproduce cancer by inoculation, he thought that some consideration should be given to the circumstantial evidence in favor of the parasitic theory as offered by records of geographical distribution, the existence of cancer houses and conditions of environment, associated with the occurrence of the disease. Relating to this, he did not accept the statement of Banks that a diet of flesh predisposes to cancer, but rather that a diet of raw vegetables tended to it. He felt that the parasite most probably is introduced into the body through the medium of some lower form of animal life which is in constant association with it and especially such vegetables as are used for food. On inquiry, in certain cases of cancer he had noted that the houses in which the affected individuals resided were infested with snails to a remarkable degree and in many cases the victims had been addicted to indulgence in salad as an article of diet.

Dr. Walter, at the North of England Obstetrical and Gynecological Society on January 17, 1902, reported a case of recurrence of papilloma of the vagina in an unmarried patient, thirty-seven years old, admitted to St. Mary's Hospital, Manchester, in August, 1899, complaining of bleeding from the vagina between her periods, which had continued off and on for several months back. Her general condition was good. The uterus and other pelvic organs were healthy. Inside of the vagina on the posterior wall was a small papilloma which bled readily. This was scraped away and the cautery applied freely to the base. On microscopical examination of the scrapings, the appearance of a simple papilloma with no sign of malignancy was shown. In November, 1898, the patient reentered the hospital as the papilloma had recurred. The cautery was again applied. The following year on two occasions similar treatment was necessary. In 1900 the patient was readmitted in June and in December. The patches were larger in size than formerly, but were still quite superficial and were free from any deep-seated attachment. The cautery was applied to the affected surface. Last year in March, July, October, and December, the patches had returned and were spreading upward on the posterior and left wall. In December it was found that infiltration into the perivaginal tissue on the posterior and left side had occurred since her previous visit. As the vagina was extremely narrow, the perineum was divided and the part was exposed to view. A patch of mucous membrane of the size of a shilling with a raised and granulating surface, together with a small growth nearly as large as a nut, was removed and the vagina was packed with gauze. The microscopical appearance of this growth was a fibrous and elastic tissue basement, containing a considerable number of cell nests.

E. J. McWeeney, at the Royal Academy of Medicine in Ireland, before the Section on Pathology, on January 10, 1902, read a paper on the cause of vaccinia. He said that since the work of Von Thieme, Ceely, Voigt, and Fisher, there could be no doubt that vaccinia was merely smallpox modified by passage through the calf. The microscopical etiology of both diseases must therefore be the same. Since the commencement of the bacteriological epic repeated and unsuccessful endeavors had been made to establish a bacterial etiology of these maladies. Among the most recent of these attempts might be cited those of Klein, Copeman, Kent, Nakanishi, Czaplewski, and Vanselow. Mann had demonstrated that in sections of vaccine, tissue appearances closely resembling micro-organisms, but really consisting of granular or rod-like precipitates of stain, might be produced in the process of carrying out Gram's method. The bacillus of Nakms was at once recognizable by any one familiar with the microbes of the calf's skin, such as the xerosis bacillus. It closely resembles that of diphtheria, but is harmless. Similarly the micrococcus quadrigeminous of the last-named observers had been recently admitted by themselves to be devoid of all etiologicial relation to the vaccine process. The attempts to prove that variola and vaccinia were due to a parasitic protozon were begun in 1886 by Vander Loeff, continued by L. Pfeiffer of Weimar, and still further developed by Guarnieri of Piesa, and by Pfeiffer's pupil, Wasielewsky. To Guarnieri belongs the credit of having selected as the field of observation the rabbit's cornea, a transparent, non-vascular structure, in which the histiological events could be observed uncomplicated by the vascular and exudative phenomenon of inflammation. He saw in epithelial cells of the inoculated cornea rounded bodies varying in size from that of a minute coccus to about one-third of the epithelial nucleus. They lay in the protoplasm, often close to and even uniting the nucleus. Ameboid movements were observable on the worm stage and E. Pfeiffer saw bodies lying *between* the epithelial cells an hour after vaccination and *within* them a few hours later. Several observers, such as Ferroni, Massari, Salmon, and others, had endeavored to explain these bodies as resulting from irritation of the non-specific kind, but Huckel while not admitting their parasitic nature had been led to infer that they were the result of some alteration of the cell produced by the parasite or its toxin. E. Pfeiffer had shown that lymph that had lost its activity through filtration or otherwise was incapable of producing these bodies in the cornea. Wasielewsky had propagated the vaccine virus on the rabbit's cornea for forty-three generations, and used the corneal epithelium scraped off the forty-third consecutive rabbit for vaccinating children and had produced a large percentage of typical vaccinations. The only feature presented by such virulent epithelium and not presented under any circumstances by normal or otherwise rooted epithelium was the presence of these bodies described by Guarnieri. For this reason it was difficult to escape the conclusion that the bodies were the carriers of the infection. Beyond the seeming existence of a nucleus, the most careful examination had failed to reveal much structure in the bodies as are found in the affected epithelium and as to their reproduction and developmental cycle little or nothing is known. The paper closes by showing the several stages in the evolution of the vaccine vessel, illustrated by lantern slides and actual preparations; the author also exhibited slides and sections of the inoculated rabbit's cornea, in which every cell was seen to harbor one or more of these bodies.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 20, 1902.

The Second Vice-President, Charles L. Dana, M.D., in the Chair.

The scientific business of the evening consisted of a Symposium on Vaccination.

Health Department and Smallpox.—Dr. Alonzo Blauvelt said that the announcement of a smallpox case comes to the New York Board of Health either from a physician or a citizen, by telephone or by mail, or through anonymous letters, reporting supposed cases, which are always investigated, but very rarely prove to have basis in fact. When the message is received the sergeant of the police station in the district in which

the patient resides is asked to send a policeman to watch the premises and to accompany the diagnostician of the Board of Health when he arrives. If the diagnostician finds the patient suffering from smallpox, he visits all the other rooms of the house, vaccinating every one besides looking for other cases. Careful inquiries are made as to all those who have been in contact with the patient, and as far as possible they are vaccinated. The diagnostician takes note of all articles in the room or in use by the sick person and these are fumigated by the Board of Health which sends a wagon for them; after twenty-four hours they are returned in another wagon. A week later inquiries are made as to the condition of the persons vaccinated and in cases in which the vaccine material has not successfully taken, revaccination is offered. All school-children living in the house are kept from school for three weeks, as are also teachers. School-books in the house are destroyed if the superintendent of the school makes a request to that effect. Vaccination is offered to all in the immediate neighborhood of the patient and these cases are further investigated in order to be sure that the virus has had its protective effect. A patient suffering from smallpox in any stage is at once removed by ambulance or coupé to Riverside Hospital on North Brother Island. After use for the transfer of a case of smallpox the ambulance or coupé is thoroughly fumigated by formaldehyde gas in a room specially arranged for this purpose. No exceptions are made to this rule of removal, no matter what the circumstances of the patient.

Dry Points versus Glycerinated Virus.—Dr. M. J. Rosenau, Director of the Hygienic Laboratory of the Marine Hospital Service at Washington, read a paper on the bacteriology of dry points and glycerinated virus. He said that bovine virus has the advantage of not containing human diseases, hence its general use; bovine virus may, however, carry pus cocci and other undesirable micro-organisms, and the greatest care is needed to protect human beings against this injurious inoculation. In 1891 Dr. Monckton Copeland of London showed that glycerin inhibited the growth of all micro-organisms associated with vaccine virus and destroyed most of them. Glycerin is not an antiseptic, but it slowly kills by dehydration. Diluted glycerin may be a culture medium for micro-organisms. Glycerin also eventually destroys the power of vaccine virus, but this occurs later than the death of the micro-organisms hence the special effect of the use of glycerin. Glycerin should be added to virus from four to six weeks before it is used. Dr. Rosenau made his observations on dry points and glycerinated virus bought in the open market and kept under proper conditions of air and light. Forty-one dry points showed an average of over 4,000 microbes on each point. Forty-one samples of glycerinated virus showed an average of 2,800 microbes in each sample. This is entirely too many, considering the normal bactercidal efficiency of glycerin. Some of the micro-organisms found in the glycerinated virus were the ordinary pus cocoi and the mircrobes of hemorrhagic septicemia. While all these developed in bouillon, they were found to be without virulence for the ordinary laboratory animals and apparently had lost some of their normal activity. The presence of so many micro-organisms in glycerinated virus seems to show that manufacturers put on the market green virus —that is, vaccine virus mixed with glycerin only a few days before delivery for use. When glycerinated virus was kept for five or six weeks at the laboratory the number of micro-organisms fell in most cases to less than 200 per sample. This seems to be an absolute demonstration of the necessity for longer contact of the virus with the glycerin.

Dangers of Glycerinated Virus.—One of the specimens of glycerinated virus examined contained molds and other micro-organisms, indicating stable contamination, which points out the danger that may occur from over confidence in the efficiency of glycerin in destroying micro-organisms. The strictest precautions should be taken to prevent the contamination of vaccine material; manufacturers must not depend on the destructive power of the glycerin and practise economy by lessening their antiseptic precautions. The glycerinated virus of one manufacturer contained more micro-organisms than the dry points manufactured by the same firm. Dry points, when kept for some time also have fewer micro-organisms, the drying process causing bacteria to lose their vitality. One reason for difference in the number of micro-organisms in certain cases is that the tubes containing the glycerinated virus vary greatly in size. Some of them contain ten times as much as others. The quality of the micro-organisms, and especially the frequent presence of pus cocci and of microbes of the hemorrhagic septicemia variety, evidentally show the need for proper control. The enforcement of government inspection with power to prevent the sale of improper material seems to be the desideratum.

Clinical Comparison.—Dr. F. S. Fielder read a paper on the value of the dry points compared with that of glycerinated virus in the actual practice of vaccination. Dr. Fielder made a series of clinical tests in connections with the laboratories of the Board of Health of New York City. From twenty-one calves dry points and glycerinated virus were prepared which were tested on primary vaccination cases. Ten children were vaccinated in three places, there being fifteen insertions each of dry point and the glycerinated vaccine material. Each child was inspected six or seven days after vaccination in order to determine whether vaccination had taken or not, and three or four days later to determine the constitutional reaction, rashes and so forth, that might occur. The glycerinated virus was successful in 95 per cent. of the insertions; the dry points in only about half the cases. The quality of the resulting vesicles was very much better with glycerinated virus than with the dry point. The failure of the latter seems to be that not so much of the base of the vaccine vesicle in which the vaccine bearing bodies reside is obtained on the surface of the dry point as in the glycerin emulsion. It is the presence of these apparently protozoic bodies that makes the vaccine material efficient, and anything that secures a large number of them for vaccination purposes is sure to produce more uniform success.

Rashes and other Accessories.—There was somewhat more rash noted in cases vaccinated with the dry points than in those in which the glycerinated virus was used. As by the conditions of the experimental observation, however, the glycerinated virus employed was green—that is, inoculated within a few days of its preparation and without waiting the customary five or six weeks for the glycerin to effect its purpose of destroying attendant micro-organisms—it is not surprising that some rashes were noted with it. One rash resembled very much that of varicella, but as it occured four days after vaccination it was thought to be due to the vaccine virus. Such cases of varicella-like rash have been seen before; in this case, however, another child in the family developed a varicella-like rash two weeks later, though it had been vaccinated the previous year and the lesions ran the typical course of true varicella.

Tetanus and Vaccine Virus.—Dr. John H. Huddleston read a paper on the possible relations between tetanus and vaccine virus. Tetanus as a sequel of vaccination is rare and it has occurred indiscriminately

after the use of dry points and glycerinated virus. The most careful investigation of a large series of cases shows that no case of tetanus ever developed at a time when according to the usual incubation period of tetanus, it would seem probable that both tetanus and vaccinia could be inoculated together. It is well known that tetanus bacilli occur in horse manure in considerable quantities. This is considered to be the principal source of tetanus bacilli in large cities.

Cow-Manure and Tetanus.—It is not known by any definate set of experiments as yet published whether or not tetanus bacilli occur in the stools of cattle. Dr. Huddleston, in connection with his Board of Health work in New York, instituted a series of observations to determine the occurrence and non-occurrence of bacilli in calf-manure. Cultures were made from 25 samples of manure passed shortly after calves were admitted to the vaccine laboratory; these calves had been fed on hay on which is known that the tetanus bacillus occurs thus finding its way into the intestines of animals. Six of the twenty-five samples gave cultures of bacilli suspiciously resembling tetanus bacilli. Two of the micro-organisms thus found withstood a temperature of 95° F. for an hour. When injected into animals, these bacilli produced tetanic spasm, and two days after the animals died. With the idea of determining whether calves are susceptible to tetanus or not, tetanus bacilli were inoculated with cultures of the bacillus. In small amounts they failed to produce any reaction. Used in larger amounts and introduced by means of scarification they did not cause symptoms. Tetanus bacilli smeared over the teats of the animals from which vaccine matter were to be obtained penetrated to the bases of the vesicles and all of the vesicles gave serum from which cultures of spore-bearing anaerobic organisms could be obtained. To the toxin of the tetanus, calves proved to be extremely insusceptible; after large quantities had been used without success, all the toxin in the laboratory was introduced into one calf, nearly a thousand c.c., and only then was there a fatal result.

Sealed Tubes and Tetanus Bacilli.—It has been said that the sale of vaccine virus in sealed tubes really favors the growth of tetanus bacilli, if any should by chance be present in the material; these sealed tubes are supposed to provide a favorable anaerobic location for the growth of the bacillus. In order to test this question, Dr. Huddleston inoculated bouillon and water with tetanus bacilli and then enclosed the contaminated material in sealed tubes. The tetanus bacilli multiplied very noticeably. When glycerin was added to the bouillon and water, however, there was no growth of the tetanus bacilli, though the sealed tubes were kept at the most favorable temperature for their growth for many days.

Vaccine Matter and Tetanus.—Animals inoculated in the ordinary way with vaccine material known to be contaminated by tetanus bacilli did not contract the disease. Very susceptible animals as far as regards tetanus were used for these experiments and it is evident that tetanus is not easily transmitted by the scarification method, as might be expected from the well-known anaerobic character of the micro-organism. It refuses to grow in the presence of oxygen and superficial wounds are never a source of tetanus. Tetanus occurs by special preference after deep wounds, because then the bacillus becomes buried in the tissues far away from the free oxygen of the air. It is not surprising, then, that the Royal Commission appointed in England to investigate this subject reported only one case of post-vaccinal tetanus, even that not due to coinfection.

Exaggerated Claims for Glycerinated Virus.—Dr. Foster said that he is an opponent of the use of glycerin in the preparation of vaccine virus. Exaggerated claims for the effect of glycerin on vaccine material in the destruction of intruding micro-organisms have been made without sufficient reason. Dr. Foster considers that Dr. Rosenau has approached the subject from a different and more rational standpoint from that usually assumed in the literature of this subject. He is accustomed to hear it said that in glycerinated virus there can be no possible danger. Dr. Rosenau has shown that any danger that exists is quite as real with glycerinated virus as with dry points unless proper precautions are taken. The use of glycerin has been put forward as an alleged safeguard, and has thus led to the neglect of many other needed precautions. Many of the glycerin preparations of vaccine virus on the market are, as has been shown by Dr. Rosenau, not what they are represented to be. Undoubtedly some of the bad results recently reported in vaccination cases have been due to the neglect of proper precautions in the preparation of this glycerinated virus.

Use of Dry Points.—Dr. Foster, who has had much experience in the preparation of dry points and in the use of vaccine material according to this method, says that in order to keep properly dry points should be subjected to artificial desiccation; drying of the most thorough kind at an ordinary temperature is not entirely efficient. When properly prepared, dry points present many features of excellence and are not superseded by glycerinated virus. Their satisfactory employment for long years by the profession, under all sorts of circumstances, makes an excellent practical proof of their value.

Japanese Experience with Vaccine.—Dr. Kinyoun, Medical Inspector of Foreign Laboratories for the United States Marine Hospital Service, said that Kitasato, who is in charge of the Japanese government laboratories for the manufacture of vaccine virus, after a series of the most careful observations, has decided that glycerinated vaccine material should be exclusively employed. Dr. Kinyoun had seen in Japan a series of thirty-eight successful primary vaccinations done upon children. Sixty out of three hundred and sixty adults had been successfully vaccinated in a secondary vaccination. The comparatively few successful results are due to the fact that the Japanese as a nation are universally vaccinated in childhood and at intervals thereafter. The confidence of the Japanese in the protective power of their vaccination is such that no restraint is practised with regard to smallpox; there is no quarantine, and except in remote country districts, practically the whole nation is immune to smallpox from repeated vaccinations. Japan furnishes at the present time the best possible proof of the value of vaccination against smallpox.

Strength of Vaccine Material.—Dr. Kinyoun said that the first part of the lymph that comes from the vaccine vesicle contains more vaccine material than the subsequent fluid contains. Down in the pulp at the base of the vesicle the vaccine particles are contained and are gradually washed away by the issue of serum. Points made, then, from the later portion of the contents of the vesicle are apt not to be so successful in their effects. Dr. Kinyoun was associated with Dr. Monckton Copeland at the time of his researches on the use of glycerin, and his experience convines him that glycerinated virus properly prepared is greatly superior to the dry point.

Manila Sore Arms.—The experience with vaccination at Manila has not been very satisfactory. For some reason the virus used there produces untoward results and extremely sore arms. The glycerinated virus does not seem to be free from micro-organisms that produce serious infective processes. One

of the difficulties has been that owing to the temperature, the vaccine virus is used immediately, and so the glycerin has not its proper opportunity to destroy or greatly lessen the vitality of undesirable micro-organisms. In Japan the best results are obtained by the intimate division of the vaccine pulp, so that only minute portions of tissue are mixed with the glycerin; this enables the glycerin to reach every part of the vaccine material and helps it to produce its antiseptic effect much sooner than would otherwise be the case. The vaccine virus thus prepared does not last as long as other glycerinated virus, but its additional advantages more than compensate for this. The virus issued in Japan is supposed to be effective only for sixty days.

Filtered Lymph.—Dr. Jacobi asked if Dr. Huddleston had stated that filtered lymph was incapable of producing true vaccination. He said that in the old days physicians obtained their vaccine material by watching their cases very carefully and obtaining serum from vesicles when they were absolutely clear and as yet unclouded; this perfectly clear serum was well recognized to be the most effective vaccine material and to contain no undesirable qualities. This serum was collected on a series of ivory points or in a goose quill, the most important consideration being to avoid the pus stage of the vaccine vesicle because at this time the virus had deteriorated. This had also been the custom in the villages of Germany in which Dr. Jacobi had lived and there is no doubt of the efficiency of the vaccine performed with this perfectly clear material.

Filtered Vaccinal Serum.—Dr. Huddleston said that the serum of vaccine vesicles after filtration is absolutely inefficient. The reason for this is that the vaccine virus is contained on minute particles, which are, however, not small enough to pass through an ordinary filter. The dry particles filtered out of the serum may be used with success for vaccination purposes, but not the filtered serum. The clear serum found in vaccine vesicles contains, however, a certain number of particles that have been washed out of the pulp beneath, and these are capable of producing efficient vaccination.

Life of Vaccine Material.—While ordinary glycerinated vaccine virus is not supposed to last more than two or three months, observations by the New York Board of Health show that the life of certain specimens is as long as thirty months after its original issue. Glycerin does not produce its action as an antiseptic merely by its drying power; even when diluted to 50 per cent. glycerin is still active in preserving vaccine virus and in destroying accessory micro-organisms. It is not its special affinity for water, but probably some chemical quality of the glycerin that gives it its bactericidal action.

Active Vaccine Bodies.—Dr. Rosenau, in closing the discussion, said that a series of observations made recently show that the bodies which produce the protective effect in vaccination have an especial affinity for epithelial tissue. These bodies have been grown upon the corneæ of animals and then transferred to other parts of other animals for vaccination purposes with success. In one set of observations the vaccine material was transferred forty-six times from cornea to cornea and still had its power of producing a typical vaccine vesicle. Some manufacturers use glycerinated virus not contained in sealed tubes, but on the ends of ivory or bone points. This method of manufacture does not seem to have any very special advantages, though it is claimed that it inhibits the growth of anaerobic micro-organisms better than when sealed in capillary tubes. He said that much remains as yet to be done in pointing out the special dangers of vaccine material manufacfacture and that a large field lies open for the special worker in this line.

SOCIETY OF DERMATOLOGY AND GENITO-URINARY SURGERY.

Stated Meeting, Held February 14, 1902.

The President, R. H. Greene, M.D., in the Chair.

A Case for Diagnosis.—Dr. H. H. Whitehouse presented the following case for diagnosis. The patient, a man twenty-five years old, presented an eruption of eight months' duration. He had had a similar eruption five years ago but, at that time, it was confined to the lower legs. He was treated by a noted dermatologist in Vienna, first with chrysarobin locally, and later, according to the patient, by injections twice a week with a "quick-silver" preparation. The eruption disappeared within five weeks. The family history is negative. He has had gonorrhea and considerable sore throat and headache, but nothing very definite. He denies chancre. The eruption is extensively distributed over both legs, thighs and buttocks, with patches upon the arms and forearms; there are but few lesions upon the trunk except over the sacrum where the patches are numerous. Scalp, face, palms and soles are free and there are no lesions in the mouth. He complains of intense itching and burning symptoms which were present also in a marked degree during the first attack five years ago. The eruption consists of circinate spots made up of papules grouped into horseshoe or crescentic patches, forming gyrate figures. There is a marked solidity to the papules, the color of which is a dull red. Some papules are devoid of scales, while others have adherent dry silvery scales resembling very closely those of psoriasis. Some patches are clearing in the center and pigment spots are present at the site of former lesions. There is a well marked postcervical and inguinal adenopathy.

Dr. James C. Johnson thought that two attacks, exactly of the same type, occurring five years apart, was sufficient to exclude syphilis. In old cases psoriasis, typical in its distribution, never entirely disappears; the fact that the eruption cleared up under mercurial treatment is not sufficient reason to exclude psoriasis.

Dr. Lapowski did not believe that it was syphilis, but that it was a case of psoriasis and seborrhea combined.

Dr. T. C. Lusk said many, for instance, Walker, claimed that psoriasis was but a form of seborrheic eczema.

Syphilitic Growth in the Perineum.—Dr. H. H. Morton presented this specimen which was taken from a patient who gave the following history: A. J., colored, about forty years old. Has had gonorrhea several times, his last attack occurring one year ago. He now appears entirely well. In October, 1900, he had a sore on his penis which lasted until March, 1901. This was followed by enlarged glands and sores in his mouth, which lasted for three or four months. His present attack began two months ago, with a swelling in the perineum which grew slowly larger and caused difficulty in urination. On December 30, 1901, an operation was performed. An external urethrotomy for a supposed abscess of Cowper's gland, or extravasation of urine was performed. The skin of the perineum was incised and a hard tumor lying over the urethra was exposed. This tumor lay nearly in the median line, but slightly to the left side. The tumor was split in half and the urethra exposed. There was a considerable amount of peri-urethral infiltration and thickening. A stricture of large caliber was divided. The tumor was dissected out with curved scissors and a large catheter introduced into the bladder for drainage. The wound was stitched, but left open. February 15th he had a beginning attack of acute articular rheumatism. Perineal wound had nearly closed.

Dr. Murray, the pathologist of Hoagland Laboratory, made the following report: "The microscopical examination of tumor removed from near urethra in patient at King's Hospital shows the mass to be composed of muscular, fibrous and areolar tissue, the whole being invaded by an enormous number of small round cells. There is, also, a very extensive obliterating endarteritis and endophlebitis with perivascular small round-cell infiltration. A few cross-sections of ducts, apparently from mucous glands, are seen in parts of the mass. The growth has all the appearance of being syphilitic."

Dr. Cabot thought that it was an unique case and said it would have been interesting to have learned what the effect of treatment might have been upon a growth of that kind. He thought the growth came very soon after the primary lesion for a gumma.

Dr. Lusk said that it looked more like a keloid growth than a gummatous growth. The colored race were very prone to develop keloid and any kind of irritation seems to be followed by such a formation, especially in syphilitic patients.

Dr. Johnson said that the pathologist was very careful not to commit himself when he stated in his report "the growth has all the appearance of being syphilitic." He made his diagnosis chiefly upon the condition of the blood-vessels in that he stated that there was an extensive obliterating endarteritis and endophlebitis. He knew of no way by which a diagnosis could be made with the microscope between syphiloma and tuberculosis of the skin except by finding the tubercle bacilli. He thought the pathologist was perfectly right in stating that the condition was the result of previous injury and was syphilitic in character.

Hypertrophy of the Prostate.—Dr. H. H. Morton presented this specimen. The patient, F. B., a Finlander, by occupation a tailor, aged sixty-two years, had never been ill before his present sickness. His family history is negative. He has had a little trouble in passing his urine for one year past. He went to a physician to have some sounds passed and this the doctor was unable to do, but he did make a false passage in the posterior portion of the prostate; immediately after this accident the patient came to the hospital, being admitted on December 5, 1901. He was suffering from retention of urine and great distention of the bladder. It was impossible to pass any instrument into the bladder as all instruments went into the false passage. External urethrotomy without a guide was done. The finger introduced into the perineal opening showed an enormous enlargement of lateral lobes of the prostate and the entire prostate formed a ring around the vesical orifice. The bladder was drained through a large catheter for three weeks, but complete retention occurred as soon as the catheter was removed and so it was put back and left until January 10th when prostatectomy by the Alexander method was performed. The bladder was opened suprapubically and the perineal wound was used for shelling out the prostate from its capsule. There was no hemorrhage; the bladder was drained through the suprapubic wound and a perineal tube. January 13th: Bladder has been draining thoroughly through the tubes. Urine, from 40 to 60 ounces in twenty-four hours. Patient has shown no signs of shock, feels well, and is free from pain. Temperature ranges from 99 to 101° F. Patient has had urotropin; water to drink every two hours, the bladder has been washed out, and he has been turned from side to side every hour. The wounds look healthy. To-day he had a chill and rise of temperature to 104° F. January 14th: The temperature was subnormal, 96° F., but went up again and ranged from 98 to 101° F. till death. Patient grew weaker and refused nourishment. Coarse râles were heard over the lungs posteriorly. The urinary secretion was free. The abdominal wound looked gangrenous, although the skin was united. January 19th: Patient died. Autopsy: The suprapubic wound was infected and a sloughing, rotten cavity, which extended as high as the umbilicus, was found between the skin and the transversalis fascia. There was a well-marked septic hypostatic pneumonia of the left lung. The kidneys showed a chronic diffuse nephritis, with secondary septic infection. The bladder was soft and necrotic and contracted. The cavity of the capsule of the prostate was not much affected, although no signs of repair were present. The perineal wound was soft and necrotic. The cause of death was septic absorption, chiefly from the suprapubic wound. Evidences of the infection appeared three days after the operation. The question arose, Was the patient infected during the operation (open wound in the perineum from perineal section present) or was he infected by his own urine (the urine was at no time very foul nor did it contain large quantities of pus)? The patient would probably have recovered if he had not become infected, although the laceration of the urethra was considerable in extent. The wound looked clean and the tabs of mucous membrane would have grown fast to the floor of the urethra or else would have sloughed off; the floor of the bladder was intact, the drainage perfect, and but very little urine came in contact with the wound in the prostate.

Results of the Bottini Operation.—Dr. H. H. Morton presented a specimen showing the results of the Bottini operation. The patient, J. M., seventy-eight years old, a painter by occupation, entered the hospital December 9, 1901. He has been unable to urinate naturally for a year past, and complains of a frequent desire to pass water and an inability to perform the act; he also has a good deal of tenesmus. Upon entering the hospital the patient could only pass from one to two drams of urine at infrequent intervals and practically had complete retention. The catheter introduced into the bladder drew off twenty-four ounces of residual urine. *Per rectum* the prostate appeared to be 1½ to 2 inches in diameter and hard. The cystoscope showed an enlargement of the middle lobe and a trabeculated bladder. The urine was found to be acid, cloudy, with a specific gravity of 1016. Slight sediment; pus cells present; no casts. December 17, 1901. Bottini's operation was performed.

No general anesthetic was used, but cocaine was injected into the urethra and the patient did not complain much of pain. After the operation he had to be catheterized twice a day for the first two or three days. Then he began to pass water and the catheter was used only in the morning, withdrawing eight ounces of residual urine. December 28th: Catheter used now once a day and withdraws from three to four ounces of residual urine. Passes water every hour during the day and five times at night. He is slow in starting the stream, requiring from five to ten minutes, yet he ejects a small stream with a good deal of force and some pain. January 18th: Urinates now six times daily and four times at night and passes a better stream than before the operation. Cystoscopic examination shows the middle lobe of the prostate with a cleft in the middle made by the Bottini operation.

February 10th: Patient has been up and about the ward and feeling comfortable until a week ago when he began to fail and died to-day probably from chronic cystitis and uremic fever. Complete autopsy not permitted. Autopsy: Bladder is black inside and contains a small quantity of thick foul pus. Many small necrotic areas, ⅛ inch in diameter, scattered about on

the surface. Numerous small sacculi, ¼ inch deep, one containing a small calculus. Traces of Bottini operation shown as follows: Necrotic areas at interureteric fold. Blade must have caught here and knife burned a superficial incision through interureteric fold. Middle lobe of prostate cleft in halves and necrotic area at apex of each half 1 inch in length and ½ inch wide. The left lateral incision visible as a cut lying to the left side. Knife missed splitting prostate (handle of instrument must have been elevated too much) and stripped bladder mucous membrane off surface of prostate. The anterior cut evidently not made at all. Knife simply moved backward in the urethra.

Bladder in bad condition prior to operation; cystitis was evidently made worse and was probably the cause of death. The middle lobe of the prostate was divided; the reduction in its size apparently occurred from the sloughing of the burned areas at the apices. It is probable that the operation proves curative through the contraction of the cicatrices following this sloughing. The difficulty of placing the instrument in the proper position, without seeing, is shown by the fact that the left lateral incision was made incorrectly, the anterior incision not made at all, and that during the posterior incision the beak of the instrument was too far in the bladder and burned through the interureteric bar, which, as it happened, did no harm but was unnecessary. Death occurred seven weeks after the operation. The patient's retention of urine, which was complete, was almost entirely relieved and if he had left the hospital a few weeks earlier, as he was perfectly able to do (he was kept in the ward because he needed bladder washing and because he had no home), he would have been entered on the statistics as cured. The autopsy showed that the curative result was brought about through the effect of one incision.

Dr. F. Cabot said that the Society owed a debt of gratitude to Dr. Morton for reporting the cases he had lost, for often more is learned from such reports than from reports of successful results. With regard to the Bottini method, he believed it to be unsurgical; the fact that one was not able to see just what one was doing damned the operation in his eyes. He believed that although good results came from the sloughing, others occurred later on through cicatrization or through the shriveling of the prostate as the result of the cicatrix. He called attention to the fact that the case might have been placed on record as a successful case and said that this gave food for thought.

Dr. Bierhoff said that the case was particularly interesting to him because he had of late been thinking over the question, not as to what were the indications for a radical operation, but as to what were the contraindications. One often hears reports of the cases operated upon radically, but seldom does one get reports of the condition of the other organs prior to operation. In Dr. Morton's second case he did not refer to any signs pointing to involvement of the kidney; in the first case he did. Personally he believed that pyelonephritis or nephritis was a contraindication for operation. He thought that these cases did better if some palliative treatment were used; often, when indications for radical operation were present, the application of some form of palliative treatment caused an improvement in the kidney condition. He believed that the existence of degenerative renal changes forms a distinct contraindication. Working in the dark had been practically done away with. He referred to certain instruments, those of Wossidlo of Berlin and those of Freudenberg and Bierhoff, which can be used under the guidance of the eye. These cannot be used in every case, unfortunately. There is going on abroad quite a discussion as to the technic of the Bottini operation—whether the finger ought to make counterpressure, etc. He thought that, before the current was turned on or the knife drawn from its sheath, one should satisfy one's self with the finger in the patient's rectum, that the point of the instrument is really behind the prostate and is distinctly to be felt here. He said that Freudenberg laid particular stress upon the point that the beak of the instrument should press firmly against the part to be cut; if that be done and if the beak of the instrument be situated directly behind the prostate and could be distinctly felt through the rectal wall, hooking firmly against the prostate, there would be no slipping away of the beak and one ought not to cut other than the prostatic tissues.

Concerning the belief that filling the bladder with some clear fluid would interfere with the heat of the knife, he would say that he always fills the bladder with boric-acid solution, and he has never found that it interfered with the heating of the knife, provided one hooks the beak of the instrument firmly against the prostate.

Dr. McGowan said that what most impressed him was the fact that the Bottini operation was inexact. He preferred enucleation rather than cutting.

Dr. Hotchkiss asked Dr. Morton if he knew that the median lobe had been left in doing the Alexander operation.

Dr. Morton replied that he did not attempt to remove it.

Dr. Hotchkiss asked if he could reach it with his finger.

Dr. Morton replied that he could, and that it was found to be quite small.

Dr. Swinburne asked whether, if the bladder was distended with air instead of water, the air would escape on account of the manner in which the instrument was heated.

Dr. Cabot said that he believed that the Bottini and other methods should be superseded by the method Dr. Fuller was now using, the suprapubic method, which enables one to get good drainage. One of the most serious objections to the Bottini method he considered to be imperfect drainage. In his operation the suprapubic and perineal tubes are left in position for some time and the granulation tissue was not disturbed. This washing out of the bladder corrected the cystitis.

Dr. Greene said he now had a case in the Workhouse Hospital, a man with a suprapubic fistula, who had no control over the sphincter muscles, and who urinated continually during the day. As soon as any urine gets into the bladder it dribbles out through the urethra. To remedy the suprapubic fistula a catheter was introduced; but still the urine dribbled out along the sides of the catheter, and whenever the patient assumed the reclining position the urine appeared through the suprapubic opening. This showed how difficult it was to keep the bladder thoroughly drained in cases of suprapubic cystotomy. Apparently, if the patient could be kept in the semi-upright position better drainage could be had.

Dr. Bierhoff referred to the statistics published in 1900 by Freudenberg regarding the success of the Bottini operation. The latter did not call a case cured that was not seen some months after operation, or who had ever so little residual urine, or who relied upon a catheter; in other words, the function must be restored and the cystitis cured before the patient was considered cured. The deaths reported were about 4¾ to 5½ per cent.; the cures were over 55 per cent. The ages of the patients had frequently been over seventy. The speaker had assisted Dr. Freudenberg in operating upon a patient sixty-nine years old.

Dr. Greene referred to bladder insufficiency owing to atrophy of the bladder muscles in cases that were operated upon for hypertrophied prostate, and said he did not see how such cases could be cured.

Dr. Lapowski asked if Dr. Bierhoff would operate in cases in which the bladder was infected and in which a purulent discharge and streptococci were present.

Dr. Bierhoff replied that he would not operate until the bladder had first been treated.

Dr. Morton agreed with the points brought out by Dr. Bierhoff. He thought it was a great mistake to operate upon a patient who was suffering from advanced renal disease. In every case of prostatectomy he examined the urine before operation to see that the kidneys were not badly affected. Such an examination was made in the case reported and but a little albumin and a few casts were found, showing but a slight nephritis; after the operation the patient passed from 50 to 60 ounces of urine, showing that the kidneys were not badly damaged. At the autopsy the kidneys were shown to be diseased but it was caused by an acute sepsis. He thought the point made of placing the finger in the rectum a valuable one. He always endeavored to hook the beak of the instrument before beginning to cut. He acknowledged that he could not always tell exactly where the beak was. In reference to Dr. McGowan's remarks regarding the Bottini operation not being exact, he asked what was to be done in cases in which there are complete retention and a hard fibrous prostate which demand relief. Perineal drainage in such cases is not of much value; one cannot enucleate the prostate and so Bottini's operation seems to answer the purpose in these particular cases. He had never tried filling the bladder with air, as suggested by Dr. Swinburne; it seemed to him that the air would escape. If a rubber band was tied about the penis that might prevent the escape of air, but it would interfere with the manipulation of the instrument. Dr. Morton thought it was necessary to sew the tubes in to prevent their shifting and that this made a perfect drainage by running water through them. He had found that in nearly every case in which a little cystitis was present the Bottini operation made the cystitis worse and, in one case, perineal section, with drainage for two months, was necessitated. He did not believe that one should consider the Bottini at any time as a light or trivial operation, because the mortality-rate is higher than is generally thought. He acknowledged that it is a difficult matter to keep the patient dry after a suprapubic cystotomy.

A New Irrigating Pan.—Dr. Swinburne showed a new irrigating pan to be used by the patient while sitting on the edge of the bed or on a chair.

Dilating Bladder with Air Prior to Using the Lewis Cystoscope.—Dr. Swinburne said there was no difficulty was experienced in keeping air within the bladder; the only difficulty was that in the majority of cases considerable pain was caused, a sort of "bladder colic" being produced.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, Held February 5, 1902.

The President, Alexander Lambert, M.D., in the Chair.

Report of a Case of Removal of the Gasserian Ganglion.—Dr. John F. Erdmann presented a report of an operation done after the Krause-Hartley method on a patient sent to him on June 7, 1900. At the age of fourteen years the patient had developed, after a traumatism, a marked hunchback, and since then he had suffered from asthma. At the age of forty-one, while wiping his face, he felt a sharp pain in the region of the right ear, but it had disappeared and not returned for one year, when it had recurred under the same circumstances, and was so severe that he sought advice from a dentist and from a surgeon. The latter resected and excised Meckel's ganglion. Subsequently the pain became much more frequent and severe. All the usual local measures had been tried without relief. When first seen by Dr. Erdmann he was using three-quarters of a grain of morphine daily. June 30, 1900, he was placed upon a thorough course of iodide, but by July 30th the patient begged for operation as the pain was more severe and he was emaciating rapidly. On July 31st, under chloroform and ether, he was operated upon by the method of Hartley-Krause. There was troublesome venous hemorrhage during the operation, but finally the ganglion and its middle and inferior branches were removed. A small rubber drain was inserted. The temperature range was so peculiar that on the second or third day he was tempted to open the wound. The result of this was negative, and the same thing occurred a few days later. No opium or morphine was given after the operation until the eighth day and this probably explained the occurrence of some delirium. He was discharged at the end of the third week with a marked increase in weight, an excellent appetite, and free from pain; the opium habit was practically cured within three months. On January 4, 1902, the man had been deeply shocked by the death of his wife, and three days later he awakened to find himself slightly paralyzed on the left side. Since the operation there had been no pain and absolutely no eye symptoms. The speaker said that in the case previously reported by him in 1899 the patient had had absolutely no pain since that time. In quite an extensive report by Dr. Tiffany of Baltimore mention was made of the fact that in many cases disturbance of the temperature followed the removal of the ganglion. In his first case there had been some disturbance of the temperature, but it had not been so marked as in the second case. As far as the removal of the osseous portion of the flap was concerned, he did not think it made any difference because the flap became very thick and dense. He had removed it also and the patient had done well. Dr. Tiffany stated that he removed the osseous flap in all of his cases, simply leaving the periosteum, and that the patients did perfectly well.

Dr. Irving S. Haynes said that a case of this kind had been shown at the New York Surgical Society some years after the operation; there was very decided depression of the skull at the site of the operation. It seemed not improbable that there would be greater liability to pressure on the brain by leaving the bone than by removing it.

Importance of a Course of Laboratory Physics in the Study of Medicine.—Mr. M. C. Trowbridge said that he had written to about thirty-five medical institutions asking for information regarding the instruction given in physics. Answers had been received from thirty, and only three gave a laboratory course in physics. These three were the Barnes Medical College, Mo., Dartmouth College, N. H., and the Medical Department of the University of Virginia. To these should be added the College of Physicians and Surgeons, Columbia University, New York. In physics, laboratory work should be an organic part of a systematic course, consisting of lectures, demonstrations by the lecturer and qualitative and quantitative work by the students themselves. Such a course had been given for a number of years at the College of Physicians and Surgeons, New York, the laboratory portion being under his own charge. Each student was provided at the commencement of the term with a course list, in which were enumerated the experiments to be

made. The notes taken should be a synopsis of the work performed, and should be accompanied by diagrams. Each student performs twenty-five experiments, twenty of which are prescribed for him. Approximately 160 students took the laboratory course each year; hence the class was divided into four sections. Twenty-five experiments were performed in thirty-six hours, yet the students did perfectly satisfactory work. To each experiment was assigned a table, and the apparatus was kept there constantly in readiness. There was about one instructor to ten students. The general utility of the course was apparent because of the intimate relation of physics to medicine, to say nothing of the general value of such laboratory training. The experiments showed (1) the necessity of working with method and deliberation; (2) the value of precision; (3) the necessity for taking every factor of an experiment into consideration; (4) the liability to make mistakes in manipulation, and (5) the errors in the apparatus and in the experimenter. As many physical instruments were used in medicine, the practical value of such a course was obvious. Thus, the thermometer, the spirometer, the cyrtometer, the microscope and the spectroscope were used in medical work. The applications of electricity in medicine were increasing daily. Electricity was used for cauterization, the removal of tumors by electrolysis, for the illumination of cavities of the body, and for the production of the X-rays. The student became familiar in the laboratory course with batteries, galvanometers and switch-keys. In 1899 twenty-six medical colleges required a total of 4,000 hours of study before graduation in medicine, so that the laboratory course just described, which only occupied thirty-six hours, could not be said to be very time-consuming.

Etiological Classification of Varicose Veins of the Legs.—Dr. William S. Terriberry said that pathologically stricture of a valve caused (1) circular dilatation; (2) dilatation, with an actual lengthening of the affected vessel and considerable change in the walls and valves; (3) circumscribed fusiform dilatations of a portion of the diameter of the vein, forming an aneurismal sac, and (4) a number of dilated veins with aneurismal sacs in close proximity to become adherent. These different conditions might be regarded as successive stages of the process. The liability to thrombosis was greatest at the angles or pockets, or where the amount of motion was the greatest. The thrombosis was checked, according to Bennett, at the valves rather than at the nearest branch. Trendelenburg, basing his deductions upon experiments on varix of the internal saphenous vein, claimed that varicose veins were dependent upon regurgitation through the valves of the internal saphenous, with excess of pressure from above downward, there being a column of blood extending from the diaphragm to the saphenous opening without any supporting valves. Trendelenburg believed that every case of varicosity of the superficial veins was caused by regurgitation by gravity through the more or less incompetent valves of the saphenous veins, but in the opinion of Dr. Terriberry gravity had been blamed too much. The column of venous blood ascending was supported by the transmitted power of the heart's action at whatever level. So long as the propelling force was able to overcome gravity and drive the blood onward, the venous valves would not be called upon to act; but when there was obstruction, dilatation was caused primarily by the heart's action and by gravity secondarily.

If this obstruction became permanent, the vein would in time become permanently dilated and the valves incompetent. When there was stenosis above the saphenous valve, it was due either to actual narrowing of the lumen of the superior vessels or to increase of the intra-abdominal pressure. In another class of cases following obstruction from constriction, thrombosis or obliteration of a large number of veins inferior to the saphenous valve, there resulted regurgitation through the saphenous valves. There being a limit to the distensibility of the walls of the vein, an increase in the speed must of necessity follow. There was a third class of cases caused by obstruction of veins as a result of thrombosis or local constriction. Such cases were due to small anastomosing connections of the deep veins. There were, then, three groups of cases, viz., (1) those due to regurgitation following stenosis above the saphenous valve; (2) those due to regurgitation with stenosis inferior to the saphenous valve, and (3) those due to stenosis without regurgitation.

Dr. Alexander Lambert said that some years ago he had been asked to go with an engineer into a caisson to note the effect of the compressed air upon varicose veins. As the engineer came out and the air became thinner and the pressure less, the bulging of his varicose veins was something extraordinary. This engineer had worked a great deal in the caisson, but had not had the caisson disease because of his great care in coming out of the lock.

Dr. Robert T. Morris said that mention had been made of the return flow being entirely dependent upon the force of the heart. He asked whether the older idea of the aspirating power of the heart had been entirely abandoned. In doing Schede's operation for varicose veins a circular incision was made about the leg through the skin, veins and subcutaneous tissue. Numbers of very large veins were frequently widely opened. An Esmarch bandage was applied before the incisions were made; if this circular incision were made without the bandage, the patient would bleed to death in a few minutes. If the veins were divided freely and the Esmarch bandage removed without suturing, the flow from the veins would be found not to be excessive. If very slight pressure were made upon the veins which had collapsed after being emptied by the Esmarch bandage, the hemorrhage would cease. In a number of cases in which he had used Schede's operation he had simply sutured the skin without taking the trouble to ligate the large veins, and by making very slight pressure he had been able to control the hemorrhage. Practically, however, he had found that there had been a speedy recurrence of the former condition because the ends of the veins had found each other after the operation by cell replacement. It was his custom now to ligate the open veins, not for the purpose of controlling hemorrhage, but to prevent recurrence. In cases of varicose veins in which there was fairly wide dilatation, due to the hydrostatic pressure of the column of blood in the vein, there was hypertrophy of all of the structures at first, but later on there was a dilatation, and it did not seem to him that one could hope for cure from palliative measures after the hypertrophy had passed into the stage of degeneration. He asked the method of determining just when this stage had been reached. In the earlier stages palliative measures were quite effective. Alternate douches for thirty seconds in ice water and very hot water, kept up for two or three minutes twice a day, were very effective, as were also massage, the faradic current and good support. Many of these cases could be well treated without operation.

Dr. Terriberry said that the classification by causes in this particular disease was important on account of its bearing upon the choice of operation. Many observers claimed that any operation which would cut off the column of blood from above was sufficient to cure all cases. Any one who had studied carefully the reported cases would find that many of them were not cured in this way, and that in the majority of instances the failures

were in cases in which varicosity had resulted from constriction below the saphenous valves. The regurgitation might be eliminated by the Schede or Trendelenburg operation, but the varicosity remained and the force of the heart's action was expended on the wall. The aspirating power of the heart, he thought, depended upon the relative pressure, and the latter in turn depended upon the force of the heart transmitted by the elastic recoil of the arteries. It was highest at the aorta and diminished toward the end of the arterial system. A great deal of it was lost in the capillaries, but there was still enough pressure left in the beginning of the venous system to force the blood onward. Under the influence of inspiration there was, of course, an aspiration in the large veins, but when expiration took place, there were compression and a consequent increase in pressure in these veins. If there was a varicosity in the veins high up in the venous system, this might have an effect when the pressure became negative. The lack of hemorrhage mentioned by Dr. Morris is probably due to the collapse of the emptied veins caused by atmospheric pressure acting through the integument.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held February 4, 1902.

The President, Joseph Collins, M.D., in the Chair.

A Case of Monocular Exophthalmos.—Dr. J. Arthur Booth presented this case and raised the question as to whether one was justified in making the diagnosis of Graves' disease. The patient was forty-seven years of age and had never had any serious illness. She had been well up to last fall, when she noticed a blurring of the vision and a change in the appearance of the eye. There was no history of fright; the patient stated that three months ago the left eye was struck by the foot of an infant. Examination showed no enlargement of the thyroid; pulse 96; no decided tremor. Dr. David Webster found both fundi normal and the action of the eye muscles normal. There was retraction of the upper eyelid of the right eye with marked exophthalmos.

Dr. B. Sachs said that he had at present under treatment a married woman, about twenty-three years of age, who after pregnancy had developed unilateral exophthalmos. The case was identical with the present one except that the exophthalmos was on the other side. There was no goiter, and on coming under treatment the pulse was 132. Under treatment, consisting chiefly of rest in bed and the use of mild tonics, the pulse came down to 90 and was no longer intermittent, and the exophthalmos was slightly diminished. In addition, this patient presented the peculiar gastro-intestinal symptoms of Graves' disease, and, in the absence of any other serious condition he could only make the diagnosis of unilateral Graves' disease.

Dr. W. M. Leszynsky said that he had seen two similar cases. One occurred in a man who had exophthalmos, retraction of the upper eyelid and some tachycardia. In the course of six months the usual symptoms of Graves' disease developed and the case ran the usual course. In the other there was unilateral exophthalmos and retraction of the upper eyelid with slight goiter, but without tachycardia. The case followed the usual course of Graves' disease. It did not seem to him unusual in the early stage of Graves' disease to find the exophthalmos only on one side.

Dr. J. Arthur Booth thought it was rather unusual for the eye alone to be affected in the beginning; more commonly there was some tachycardia as the first symptom.

A Case of Central Hematomyelia.—Dr. I. Abrahamson presented a man of forty years, a Russian tailor. The man had fallen and struck the back of his head on the floor some weeks previously and a week and a half later had noticed numbness of the little finger of one hand; twenty-four hours after this the entire upper extremity was numb, and the next day both lower extremities were numb and weak; on the fourth day of this trouble there was complete inability to move. The special senses were normal. There was extensive muscle-wasting while in bed, although there was no fever. He recovered in a very short time. Examination showed the pupils equal and the ocular movements normal. There was a tremor of the facial musculature on one side; the tongue was drawn to the right; the reflexes of the upper extremity were exaggerated, especially the triceps. There was a marked flabbiness of the musculature and wasting, especially around the shoulders. The knee-jerks and Achilles jerks were exaggerated. There was no spasticity. The volume of the left lower extremity was much greater than that of the right. There was no limitation of the visual field, and no Romberg symptom. On rising from a chair it was necessary for him to assist himself with his hands.

Dr. Joseph Collins said that he had had this case under his observation, and the only diagnosis seemed to him to be a central hematomyelia with the cleavage in an upward direction. The comparatively mild traumatism, the rapid onset of the symptoms, the rapidity of the recovery and the widespread involvement all seemed to him to point to this diagnosis. About two weeks ago the abnormal condition had been much more marked than now. There had been great difficulty in rising from a chair, and he would sit down very suddenly. There were no objective sensory disturbances.

A Case of Cerebral Endarteritis, Probably Syphilitic.—Dr. W. M. Leszynsky presented a Hungarian woman, twenty-two years of age. There was no history of rheumatism, trauma or syphilis. Several times recently there had been transient paresis of the left arm and leg, and there had been some regurgitation of food. Shortly before coming under his observation there was severe headache and vertigo associatd with fever and followed by marked ptosis of the left eye. Examination in August showed partial ptosis of the left eye with vertical diplopia; only the left superior rectus muscle was affected; the vision in both eyes was normal. The fifth nerve was normal objectively. Innervation of the facial muscles was feeble on both sides, and there was slight facial paralysis on the right side. She was treated with mercury and iodide, together with galvanism and the use of strychnine internally. In ten weeks the ptosis and diplopia had disappeared. The ptosis then attacked the right eye and in three days became complete. The levator was the only muscle affected. The iodide of potassium was resumed, and in four weeks this muscle had almost completely recovered. One month later the lefgt eye was again attacked with ptosis; there was slight vertigo, but no diplopia. At times it was necessary to make several efforts at swallowing before succeeding; she still complained of left-sided headache, and after talking for some time she found it almost impossible to speak, but ability to do so would return after a few minutes' rest. She was now receiving twenty-eight grains of iodide three times a day. There was no history or evidence of syphilitic infection. The case seemed to be a peculiar instance of cerebral endarteritis, probably syphilitic. The iodide had very little effect in controlling the pain.

Cerebrospinal Syphilis.—Dr. Leszynsky also presented a man thirty-three years of age, a driver by occupation. He had been first seen by the speaker in

November, 1899, and up to three months before that had been well. He then experienced numbness in the left side of the face with slight twitching of the facial muscles. Two months later there was diminished vision in the right eye with occasional diplopia. Four months after the numbness began, the first three molar teeth in the right upper jaw became so loose that they were removed with the fingers. He was the father of six healthy children. According to the history, he had many years ago contracted a chancre, but no marked secondary symptoms had appeared. The pupils were found to be markedly contracted and rigid. There was no anesthesia of the conjunctiva; there was good vision in each eye; both fundi were normal. The innervation of the facial muscles was normal and there was no tremor. Mercurial ointment and iodide of potassium were used at first and later strychnine. Three months later he complained of vertigo and diplopia and was found to have complete paralysis of accommodation. At the end of two months he was much improved and disappeared from observation. After sixteen months he returned, and stated that fifteen months previously he had fallen through a hatchway, but had only been severely shaken up. In July, 1901, he was thrown to the ground by a man jumping upon his head from a height. On examination, there was found to be complete paralysis of all branches of the third nerve; both pupils were rigid and he was blind in the right eye. There was advanced atrophy of both optic nerves. He had been taking iodide and strychnine in injections. In this case of cerebrospinal syphilis the optic atrophy was apparently of a primary degenerative type. Strychnine was administered in gradually-increasing doses up to the toxic effect, but it had no beneficial action, and this had been the speaker's uniform experience with it in these cases. The case was of forensic interest because the man was trying to substantiate a claim that the blindness had resulted from the traumatism to the head.

Dr. B. Sachs said that the diagnosis could only lie between cerebrospinal syphilis and tabes, pure and simple. In the former, if the optic nerves were involved there would be a distinct optic neuritis. The important question was as to whether there had been a primary optic degeneration. According to the history, the case was probably one of cerebrospinal syphilis. The first case also seemed to be one of cerebral syphilis, but he doubted if it were an example of syphilitic cerebral endarteritis; it was more than probable a thickening in patches of the meninges of the nerves as they emerge from the base of the brain.

Dr. Leszynsky said that on account of the transient character of the symptoms it seemed to him that they were, in all probability due to some interference with the circulation. The temporary attacks of aphasia, difficulty in swallowing, and the trouble with the third nerve pointed to some interference with the nutrition of the nuclei. If this interference were with the nerve trunk itself it would be unlikely for the localized meningitis to select certain fibers of the nerve and interfere with the nuclear distribution. In the second case, both Achilles reflexes were present; there were no sensory symptoms—in short, nothing to indicate the presence of tabes.

Multiple Sclerosis.—Dr. I. Abrahamson presented two cases suggesting multiple sclerosis, though presenting other symptoms. The patients were seventeen and sixteen years old, respectively, a sister and brother. Both parents were well. The children were born without the aid of instruments, but early showed an unsteady gait, slowness of speech and nystagmus. Both children exhibited pronounced stigmata of degeneration. On examination, the gait was unsteady, the pupils were equal, the ocular movements slow and jerky, and nystagmus was present in all positions. At times, Babinski's symptom was obtainable. There were no sensory disturbances. The speech was slow and monotonous, and there were marked mental defects of the nature of a mild dementia. The fact that these two children, together with another, all belonged to the same family was a point against the diagnosis of multiple sclerosis.

Dr. C. L. Dana said that if these cases were not to be called multiple sclerosis he did not think it would be possible to make that diagnosis from the clinical picture.

Dr. Joseph Fraenkel said that he had seen the boy when he was brought to the Montefiore Hospital, and had made the diagnosis of multiple sclerosis, but after having watched the case further and obtained a complete history he had been in doubt about the correctness of this diagnosis. At the time of admission the spastic symptoms were very much more marked than at present.

Dr. Sachs said that family forms of multiple sclerosis had been described, yet they did not entirely correspond with the typical picture of multiple sclerosis. They resembled somewhat the Marie type, but he would not make that diagnosis. A progressive disease of this sort occurring in a family with dementia had been reported by one of the northern European writers.

Dr. Collins said that he would hesitate long before diagnosticating these cases as multiple sclerosis, for the reason that this was opposed to our conception of multiple sclerosis as a pathological entity. It was now looked upon as a disease of early adult life of the nature of a late infection or organic neurosis. In the cases just presented there was, in all probability, a teratological condition. To account for the symptoms there would have to be a large sclerotic area of the poles of the anterior hemispheres, while the posterior and middle parts would have to be almost free, as the special senses were well developed.

Dr. Dana said that as dementia paralytica could be associated with multiple sclerosis in adult life, it was possible that the defective mental development might exist in childhood.

Dr. J. Ramsay Hunt reported the case of a widow, fifty-three years of age, who had been admitted to the Montefiore Hospital in October, 1886. At this time her disease had lasted for several years. Speech was slow and stammering. She had a spastico-ataxic gait, the Romberg symptom, slight weakness of the upper extremities with ataxia, and considerable motor weakness of the lower extremities. The knee- and ankle-jerks were present and lively on both sides, and the pupils were equal and active on both sides. There were no sensory disturbances and no rectal or bladder symptoms. The ophthalmoscope showed an atrophy. In January, 1899, it was found that she could neither walk nor stand; speech was stammering and syllabic; there was marked intention tremor in the upper extremities; nystagmus was present in all directions except downward. The motor power was defective in the upper extremities and there was resistance to passive movements, especially in the legs. The right knee-jerk and left Achilles-jerk were absent. The plantar reflex was present on the right and absent on the left. On postmortem examination, the anterior border of the calvarium showed a nodular eburnation. The fissures were widened. The stained tissues showed an increase of gliar cells and leucocytes in the gray matter. The cells showed distinct atrophic changes and were somewhat sclerosed. The meninges were thickened and infiltrated with round cells. In the cord were found disseminated plaques of sclerosis. Nowhere in the cord were any distinct signs of inflammation. The specimens from this case were exhibited under the microscope.

Discussion on the Absolute and Relative Frequency of Multiple Sclerosis.—Dr. C. L. Dana said that among 3,000 private cases of which he had histories there were only ten cases of multiple sclerosis. Of about 600 cases at the out-door clinic during the past year there were only two cases diagnosticated as multiple sclerosis, and even these were questionable. In Bellevue Hospital itself 12,000 patients were received annually, and one of his assistants was constantly on the watch for cases of nervous disease, yet he had not found more than one or two new cases of multiple sclerosis each year. It was evident, then, that multiple sclerosis was very rare in private practice and decidedly more rare than in the clinics of Europe. It was possible that mistakes in diagnosis were made in some cases of so-called acute or subacute transverse myelitis coming under observation as chronic transverse myelitis. Some of these cases would probably ultimately prove to be examples of multiple sclerosis; of those he had been able to follow for many years none had terminated in this way. Other cases of multiple sclerosis might have been recorded as ataxic paraplegia, though he did not make this diagnosis. He could call to mind four of these cases in which there was really a combined sclerosis due to some secondary anemia or toxemia. Then there were cases of sporadic forms of retrobulbar neuritis which perhaps develop later into multiple sclerosis. From his experience he was compelled to believe that multiple sclerosis must be more rare here than abroad, possibly owing to the better surroundings of the masses.

Dr. Graeme M. Hammond said that he had spent considerable time in examining the records of both private and dispensary practice. He had examined 3,000 private records and 7,000 records from the clinic, extending over the past ten years. In the former there were 729, or about 25 per cent., with organic diseases. Of these cases, fifteen, or about 2 per cent. had multiple sclerosis. In the clinic cases there were 2,400 of organic diseases, and of these thirty-two had multiple sclerosis, or 1.33 per cent. He could not agree that there was a greater percentage of multiple sclerosis cases in dispensary practice. Of the combined private and dispensary cases forty-seven had multiple sclerosis, or 1.5 per cent.

Dr. Goodhart reported for Dr. M. Allen Starr that he had examined 10,056 cases in the clinic and had found twenty-seven recorded as multiple sclerosis. In six of these the diagnosis was doubtful—in other words, there was one undoubted case in 475. Of the 4,809 males there was one case of undoubted multiple sclerosis in 437; while of the 4,898 females there was one such case in 700. With regard to the age, the records showed that among the males there was only one occurring after the age of sixty, while among the females all developed the disease under thirty-one years of age, the earliest case occurring at the age of sixteen months.

Dr. Sachs said that he had examined the records of 2,000 cases in private practice and had found thirteen undoubted cases of multiple sclerosis and two questionable ones. There were forty-one of tabes dorsalis, sixty-nine of cerebrospinal syphilis, thirty-eight of general paresis, fourteen of intracranial tumors, fifteen of paralysis agitans, thirty-seven of apoplexy and fifteen of infantile cerebral palsy. He thought a faulty impression had been found of the relative frequency of the disease in Europe. According to one of the latest European works, the author states that he had seen 5,500 private cases of nervous disease, and in this number had met with thirty-eight cases of multiple sclerosis. This would give one in 144, whereas Dr. Sachs said his own experience gave one in 150. It was most important in considering such figures to know from what classes the material had been drawn. Many cases diagnosticated in this country for the time being as chronic myelitis were diagnosticated in Europe as incipient cases of multiple sclerosis before the characteristic symptoms had developed. With regard to the differential diagnosis, the speaker said it was important to differentiate multiple sclerosis from multiple cerebrospinal syphilis and also from general paresis, particularly in the later stages. Multiple sclerosis usually began earlier than general paresis and the latter was a much more progressive disorder, the dementia being much more marked. In several cases of cerebral infantile palsy he had been in doubt as to whether there was multiple sclerosis present. There were some cases which had begun as multiple sclerosis and had gone over distinctly into paralysis agitans. He had seen two or three cases in which there was considerable doubt as to whether the correct diagnosis was neurasthenia or multiple sclerosis.

Dr. Leszynsky said that he had no statistics to present, but he would agree with the others that multiple sclerosis is comparatively rare in this country.

Dr. B. Onuf said that he had made the diagnosis of multiple sclerosis in a much larger proportion of cases than the others, for he had seen in hospital between 500 and 600 cases and had made the positive diagnosis of multiple sclerosis in eight cases.

Dr. Edward D. Fisher sent a communication saying that in his clinic at the University, during six years, he had seen out of a total of 2,451 cases of nervous disease, eight cases of multiple sclerosis.

Dr. Collins said that in 1901, 1,470 cases of nervous disease had been seen at his clinic and this number furnished five cases of multiple sclerosis. In 1900, 1,368 cases were seen, of which five were multiple sclerosis. In 1899, there were 1,400 cases, five of multiple sclerosis; in 1898 there were 1,270 cases with three of multiple sclerosis. Thus, in the four years the clinic had been under his personal direction there had been approximately 6,000 cases of nervous disease, with nineteen cases of multiple sclerosis. During this period there had been thirty-seven cases of locomotor ataxia and twenty-nine of paralysis agitans. From 1890 to 1897 there were twenty-eight cases of multiple sclerosis in a total of about 4,000 cases of nervous disease. He had notes of eight cases of multiple sclerosis seen in the City Hospital and not included in the previous figures. This hospital devoted about seventy-five beds to nervous disease, and in this service he had met with about one case of multiple sclerosis a year. In his private practice he had made the diagnosis of multiple sclerosis four times only. According to his own experience, therefore, multiple sclerosis is a very rare organic disease of the nervous system. He had found paralysis agitans one and a half times more frequent and tabes dorsalis about twice as frequent as multiple sclerosis.

Dr. J. Fraenkel said that the statistics of the Montefiore Hospital confirmed very closely those already presented. Out of 2,100 patients at this institution during the past ten years, about half of them being cases of nervous disease, there had been only eighteen cases of multiple sclerosis. He had been very conservative in making the diagnosis of multiple sclerosis in these cases. Out of about 160 cases of nervous disease at present under treatment there, about thirty-five were cases of tabes and nine cases of multiple sclerosis.

BOOK REVIEWS.

The Standard Medical Directory of North America for 1902. Quarto, 925 pages. Illustrated. G. P. Engelhard & Company, Chicago.

This is certainly a splendid volume and the publishers are to be congratulated on their enterprise. The

many points of excellence render this book easily the best in the field. Its form is especially commendable and its many ingenious features stamp it at once as practicable, authentic, even indispensable.

In addition to its directory of practising physicians in the United States it includes those of Canada, Cuba, Mexico and Central America and further there are included careful and for the most part accurate lists of the medical officers of the Army and Navy, Medical Societies, Medical Colleges, Medical Laws and Boards, Medical Publications, Books and Periodicals, Hospitals and Sanitariums, Mineral Springs, Drugs and Medicines, Medical and Surgical Products, Manufacturers, Life Insurance Companies, etc., etc. In fact, there is almost everything that a medical directory should contain.

Certain omissions there are, and a distinct number among physicians' names, but for a first edition, the results are truly wonderful. Praise alone is its due.

Clinical Hematology. A Practical Guide to the Examination of the Blood with Reference to Diagnosis. By John C. Da Costa, Jr., M.D., Assistant Demonstrator of Clinical Medicine, Jefferson Medical College, Hematologist to the German Hospital. P. Blakiston's Son & Co., Philadelphia.

Pathognomonic blood-findings are as yet confined to leucemia, malaria, relapsing fever and filariasis, yet in many conditions the study of the blood adds very important information to that obtained by other methods. This book by its elementary fulness of detail will render such study possible to the many instead of to the specialist only. The working parts of the various kinds of apparatus and their manipulation having been studied minutely, the author plunges, in the first section, into the methods of obtaining the blood, of estimating its alkalinity, specific gravity and hemoglobin, and of counting and staining its cellular elements. The nature and function of normal blood as a whole and departures from the normal fill the second section. The chapter on the leucocytes is at once the most important and the best handled. Leucocytosis is considered as to the absolute increase in the number of white cells and the relative increase of any form of cell; a long list of diseases and drugs which affect the leucocyte-count is appended. Lymphocytosis is attributed to many different conditions, though it is not often marked except in lymphatic leucemia and whooping-cough. Sections follow on the diseases of the blood and the anemias of infancy and childhood, and then a long section is devoted to the detailed study of the blood in appendicitis, cholelithiasis, diabetes, enteric fever, erysipelas, malaria and about sixty other conditions. The Widal reaction is described and figured under enteric fever, the writer regarding as positive a reaction with 1-10 serum, though conservative men abroad and in this country require a 1-40 serum reaction. The recent work of Durham and others on serum reactions in paratyphoid infections is not mentioned.

The colored plates and figures in the text are good enough to whet the appetite for more, and the reading-matter in general is conservative, correct and up-to-date. The book deserves high commendation.

Rational Hydrotherapy. A Manual of the Physiological and Therapeutic Effects of Hydriatic Procedures, and the Technique of Their Application in the Treatment of Disease. By Dr. J. H. Kellogg, Superintendent of Battle Creek Sanitarium. F. A. Davis Company, Philadelphia.

This forbidding looking volume of 1,200 pages "aims to present in a more systematic and comprehensive way than has heretofore been undertaken the rational hydrotherapy which has been built up within the last century, and to record the fruits of the author's experience and observations." One might legitimately suppose that a volume of 1,200 large pages would provide ample space to set forth all that the practising physician should know about the use of water in the treatment of disease, but the author thinks otherwise. He says he hopes to publish another volume in which rational hydriatic treatment of individual disease will be discussed.

The book is divided into four parts. Part I. is devoted to a historical note, to the physics of water, air, heat, and light in relation to hydrotherapy, the larger portion of which seems irrelevant; to anatomy and physiology in relation to hydrotherapy about 50 pages, which, if properly pruned and compressed, would undoubtedly reveal many facts worth possessing; to the physiological effects of external and internal application of water; to the physiological effects of friction or mechanical irritation of the skin, and to the physiological effects of light. The relevancy of the latter topic is difficult to determine.

In Part II. the general principles of hydriatics, the therapeutic effects of hydriatic applications, the practical employment of hydrotherapy, and hydriatic institutions are discussed. Part III. is devoted to the technic of hydrotherapy and Part IV. to hydriatic prescription-making.

It is difficult to characterize this volume for it is not wholly without merit. A vast amount of labor has been expended upon it. It lacks particularly the impress of individuality and the stamp of homogeneity. If it had been properly "blue penciled," compressed rewritten with a clear perspective of the relation of hydriatics to the science of medicine and the art of therapy, and presented in a volume of, let us say, 300 pages, it would be deserving of most favorable consideration. As it stands now it most unfavorably impresses the reviewer, an ardent advocate of hydrotherapy, and he fully believes that the deserved reputation of water as a curative agent is not at all enhanced by such publications. Will any one, for instance, fail to recognize the absurdity of describing upward of 200 different hydratic procedures? Why not describe 300 or 600? If one can think out 200 ways he can easily think out double that number, for he has what may be called a numerical faculty. The author's judgment and scientific perspective are not always displayed to advantage in the lugged-in references to the perniciousness of tea, coffee, alcohol and tobacco, often wholly irrelevant. His remarks on these aids to wholesome living and high thinking do credit only to a certain type of mind.

International Clinics. A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, etc. By Leading Members of the Medical Profession Throughout the World. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, U. S. Volume IV., Eleventh Series, 1902. J. B. Lippincott Company, Philadelphia.

The present volume of the "International Clinics" contains some very interesting practical articles. The opening special article, "Remarks on Strychnine," by Dr. Jacobi of New York, contains some valuable hints for the practitioner. We venture to quote a very suggestive passage: "This case would prove that the modern maxim, 'Simplicity of prescription, only one drug at a time, no polypharmacy, rely on Nature,' has its unscientific and ridiculous side. Muscle, serous membrane, vagus and sympathetic (there is question of a

heart case) may be affected coincidently (*sic*) or some of them at the same time. Rely on digitalis alone? Yes, if you be sure you want nothing but the stimulation of the pneumogastric. On strychnine alone? Very well, if you want a vasomotor stimulus? Alcohol? If you want to dilate blood-vessels in conditions of spastic anemia occasioned by fright, chill, or sepsis? Atropine? If you have to combat diminution in the number of cardiac contractions. Thus, I might go on teaching the necessity of combining medicines in combined conditions."

There are some excellent articles from foreign contributors. For example, "The Treatment of Mucomembranous Colititis," by Professor Albert Mathieu; "A Modified Technique in the Spinal Injection of Cocaine," by A. Guinard, M.D.; "The Pathogenesis and Prophylaxis of Varicose Veins," by Professor Pierre Delbet; "Clinical Observations on Certain Diathetic Conditions," by Sir Dyce Duckworth; "The Etiology and Treatment of Acute Myelitis," by Professor G. Marinesco, and "Splenectomy for Malarial Cachexia," by Professor Thomas Jonnesco.

The volume closes with a discussion of the methods of keeping case records in private practice, in which Drs. Frederick Packer, Crozer Griffith, Judson Daland, J. K. Mitchell, John H. Musser and Alfred Stengel take part. The article on a description of the methods of investigating the action of drugs scarcely seems to deserve a place in a volume devoted to clinical medicine. The methods described are entirely those of the laboratory and of animal experimentation and have an academic, but scarcely a practical interest; besides they are only the usual methods to be found in any textbook of physiology.

The Surgical and Medical History of the Naval War Between Japan and China During 1894-1895. Translated from the Original Japanese Report under the direction of Baron Saneyoshi, Director General of the Medical Department of the Imperial Japanese Navy, by S. Suzukel, Deputy Inspector General of Hospitals and Fleets, Imperial Japanese Navy, Tokio, 1901.

As a work of great interest to military and naval medical men particularly, and but little less so to medical practitioners in general, this work stands out in high relief.

Its contents are well arranged. The battles are first described and then follow brief histories of the killed and wounded, the different regions of the body affected being taken up in their general order. Statistics of Injuries makes a third chapter; Causes of Wounds and their Classification a fourth; Complications, Management of the Wounded, Diseases and Injuries, Sanitary Conditions During the War, and Work in the Naval Hospitals, are the titles of the several remaining chapters.

It is an interesting record, well and picturesquely told and is worthy of much commendation.

Studies in the Psychology of Sex: Sexual Inversion. By Havelock Ellis. F. A. Davis Company, Publishers, Philadelphia.

The present volume of studies in the psychology of sex, the second of the series, is the book that aroused so much opposition on its first publication in London. The prosecution was initiated by the police against a bookseller who sold the book and the Recorder of London, sitting as a judge, finally decided that it was not a scientific work and ordered it to be destroyed. Though this was an unfortunate decision, the author did not care to act in opposition to the laws of his country even as interpreted by amateur judicial experts and declared his intention not to publish any of the further volumes in England.

Needless to say, though the subject may have intensely objectionable features and may certainly not be meant for general reading, it must receive due treatment if medical men and others whose duties require their being brought in contact with sexual perverts shall realize just what the condition is and how to be appreciated. The names of the authorities on the subject, Casper, Ulrichs, Kraft-Ebing, Moll, Schrenck-Notzing and Féré, are too widely and favorably known to permit the thought that they were seekers after notoriety and not true scientists investigating a forbidding but none the less valuable problem in mental pathology.

The present volume contains an excellent review of the subject of sexual inversion to date without indulging in too great pruriency of detail, certainly not any more than is necessary for a proper understanding of the subjects and with suggestions as to the prevention of homosexuality, with special regard to the influence of schools and the treatment of sexual inversion, that cannot but prove of great practical usefulness.

Mr. Ellis' conclusion as to the attitude that must be assumed towards sexual inversion is characteristically straightforward. He puts off the attitude of moral superiority which is common in the literature of this subject and refrains from pointing out how loathsome this phenomenon is, or how hideous that. He says very truly and pertinently. "The physician who feels nothing but disgust at the sight of disease is unlikely to bring either succor to his patients or instruction to his pupils Pathology is but physiology working under new conditions. The stream of Nature still flows into the bent channel of sexual inversion and still runs according to law."

A Text-Book of Diseases of the Ear, Nose and Throat. By Charles H. Burnett, M.D., E. Fletcher Ingals, M.D., and James E. Newcomb M.D. J. B. Lippincott & Co., Philadelphia and London.

The combined effort of these three distinguished authors has resulted in producing a book of unique interest and value. The subject-matter is well handled throughout, there is less unevenness than would be expected, and several of the chapters are masterpieces of clearness, comprehensiveness and practicality. The publisher should also be congratulated upon his part.

Several features of the work call for special mention. Of the 220 pages upon the ear, 75 are devoted to describing its anatomy. This at first would seem disproportionate. No better exposition of the theme, however, has ever been written, while the general ignorance upon the subject which exists justifies the foresight of the author in thus wisely calling attention to it. It is not his fault that the chapter on chronic catarrhal otitis media is unsatisfactory. The baffling nature of this most serious and elusive condition, the difficulty of the subject, and in general the deplorable inefficiency of our present knowledge of this distressing ailment are silently emphasized by what the best authority of his time has been obliged to leave unsaid. The chapter on acute purulent otitis media is classic. It should be learned by heart by every practitioner of medicine. It is sound, forceful and clear and cannot fail to be of great practical value. Chronic otitis media and its sequelæ, otitic abscess and the graver conditions associated with this subject, are ably dealt with. The somewhat radical views expressed regarding removal of the ossicles, especially of the incus, should be acted upon with conservatism by all not eminently qualified to

apply them. Given distinguished ability in diagnosis, exhaustive knowledge of the regional anatomy, combined with highest technical skill, the value of the general results of these operations is still *sub judice*. It would be unfortunate if the average reader were to suppose the removal of the incus were advisable in any but the most experienced hands.

The author of the section on diseases of the nose and nasopharynx has not contented himself with giving an abridgment of his already well-known work, but has presented the subjects of his department with remarkable freshness and success. The two chapters upon diseases of the accessory sinuses offer the best presentation of this difficult topic which has ever appeared. The subject-matter is terse, comprehensive and accurate, the style clear and direct, and the illustrations full and remarkably instructive.

The chapter on deflections of the nasal septum is less satisfactory. Strange to say, the Asch operation is decried, priority for it is denied, and even the name of its distinguished originator is mutilated. In point of fact, the crucial incision through the septum suggested by Adams bears about the same relation to the method of Asch as does the crude and ineffective tube of Bouchut to the perfected system of intubation of O'Dwyer. Adams' operation was a complete failure. To Asch is due the credit not only of his own admirable suggestions, but of much of the stimulus under which recent advances in the same line have been made.

The other subjects of this section are ably presented. Greater geographical scope in the mention of resorts favorable to hay-fever patients, however, would seem desirable. With regard to the prescribing of snuffs and solutions containing cocaine to patients suffering from various forms of coryza, the views of this author are open to severe censure. It is time that public attention should be strenuously turned to the great danger of this almost certain method of establishing the most pernicious habit of the age.

The most evenly constructed section of the book is that on diseases of the larynx. It is evidently from the hand of one who has completely mastered the clinical as well as the literary side of the work and it fairly places him among the foremost writers of the day. The chapter on tuberculous laryngitis is particularly valuable.

The illustrations are in general excellent. It would be difficult to find a treatise better suited to practical needs, more comprehensive or more thoroughly abreast of the time.

Outlines of Anatomy. A Guide to the Methodical Study of the Human Body in the Dissecting-Room. By Edmund W. Holmes. Second Edition. Press of The New Era Printing Co., Lancaster, Pa.

Dr. Holmes is well known to thousands of medical students and physicians as a thoroughly practical teacher of anatomy by dissection. His book partakes of his character. It deserves the popularity that demands a second edition in five years. It can be recommended as a handy guide to dissection.

Anatomy, Descriptive and Surgical. By Henry Gray, F.R.S., Lecturer on Anatomy at St. George's Hospital Medical School. Edited by T. Pickering Pick, F.R.C.S., Consulting Surgeon to St. George's Hospital, etc., and Robert Howden, M.A., M.B., C.M., Professor of Anatomy in the University of Durham, Examiner in Anatomy in the Universities of Durham and Edinburgh, etc. A Revised American from the Fifteenth English Edition. Lea Brothers & Co., Philadelphia and New York.

"Gray's Anatomy" is so well known that there is little need to say anything further of it and to praise it seems, indeed, like gilding refined gold or painting the lily. It has stood the test of time for nearly half a century and has demonstrated beyond all cavil how well Henry Gray knew how to write a text-book of anatomy.

Something should be said, however, about this new American edition. It is worthy of the old text-book at the beginning of a new century. The publishers in their prefatorial note say that anatomy is far from stationary even in its facts or in improvements in the method of their presentation. Hence, any work which would faithfully reflect the existing position of the science must be revised at comparatively frequent intervals. Fortunately for students and practitioners, "Gray's Anatomy" enjoys a continuous demand rendering frequent revision possible.

This new-century edition has been especially revised in the sections devoted to general anatomy and embryology. "Gray's Anatomy" has always been noted for its practical character and in this matter also special effort seems to have been made to keep it up-to-date. With its 1,250 pages of text, the book is undoubtedly the best work for consultation on the part of the student or the general practitioner. Notwithstanding the special effort made by teachers and compilers of anatomical works in the last few years it is doubtful if any of the recent text-books are as complete, as generally useful, or as thoroughly satisfactory as old "Gray." In its new dress it will prove as helpful to a new generation as it has to several preceding generations. The illustrations are especially well done and the book is gotten up in characteristically good shape by the publishers who have for so many years known how to keep it abreast of the times.

Proceedings of the Ninth Annual Meeting of Military Surgeons of the United States, May 13, June 1 and 2, 1900.

This admirable volume is unusually rich, since it contains many of the doings by land and sea, in Cuba and the Philippines. Many of the long articles are too technical for interpretation by the ordinary surgeon, but even these, in many cases, are so graphically illustrated with charts and other devices as to place their otherwise cumbersome data within the range of the ordinary ken. Of the shorter articles perhaps the most strikingly original is that by Captain Guy Godfrey. In a few lines he explains a practical method of controlling hemorrhage in the arm and axilla which needs no ligature and no apparatus. The method is to raise the arm upward, backward, and inward as far as possible; when the limit of motion is reached the pulse can no longer be felt in the axilla. If it is desired to keep the arm in this position for safety or for operation a clove hitch is taken around the waist with an ordinary roller bandage and tied under the opposite axilla. The posture works better in muscular men than in stout or slender men. Godfrey believes that the circulation is obstructed by the mass of muscle pressing the axillary artery against the clavicle when that artery is bent over the bone.

Another interesting series of observations by Captain Miles Standish and Major J. M. Banister on the standard of vision which should be required of enlisted men in the Army and on the extent to which military surgeons should be educated in ophthalmological lines are particularly well timed, because of a similar agitation which is now taking place in the British service.

In Captain C. W. Borden's paper on military surgery the interesting conclusion is reached that "as many deaths upon the battlefield may be expected from the

use of the modern small-caliber rifle as from the older firearms." The lateral destructive effect of the high-velocity bullet is well seen in compact bones, in organs with fluid contents, and in organs containing large quantities of intercellular fluid. At a range of under six hundred yards the presence or absence of fluid in the stomach, bladder, etc., makes all the difference between penetrating and almost harmless wounds and the entire destruction of the viscus. In fine, the ninth volume of these Transactions is a banner contribution and one which every surgeon will be glad to have upon his book-shelves.

Surgical Technic. A Text-Book on Operative Surgery. By Fr. Von Esmarch, M.D., Professor of Surgery at the University of Kiel and Surgeon General of the German Army, and E. Kowalzig, M.D., late First Assistant of the University of Kiel. Translated by Professor Ludwig H. Grau, Ph.D., formerly of Leland Stanford, Jr., University, and William N. Sullivan. M.D., formerly Assistant Surgeon of U.S.S. "Corwin." Edited by Nicholas Senn, M.D., Professor of Surgery at Rush Medical College, Chicago. The Macmillan Company, New York and London.

One of the chief merits of this book is indicated in that clause of the title page which states the number of illustrations contained in its pages. Their presence in such abundance is explained by a knowledge of the fact that the whole work was originally produced in competition for a prize offered by the German Empress for the best handbook of surgical technic, and it was the author's idea to present his material as much as possible by the graphic method. In his own words, "a glance at an illustration representing a dressing, an operation or an anatomical preparation, enables one to recall to memory most rapidly all former knowledge concerning the same." That this method of compressing an immense amount of information into a comparatively small number of pages is a suitable one which in this instance is adequately exploited is evidenced not only by the award of the prize to the author, but by the universal adoption of the book as a standard by his countrymen, and we are therefore to be congratulated upon the fact that its pages have been made accessible to us as well.

The descriptions are everywhere short and to the point, carrying out the motto on the title page "Kurz and Bündig," and, beginning with general considerations on asepsis, preparation of instruments, ligatures, dressing materials, etc., the treatment of clean and infected wounds, bandaging and narcosis take up the regional surgery of the entire body, excepting gynecological operations, and furnish a very excellent commentary on the illustrations. For the most part these, too, are very good, but there are some glaring exceptions which spoil the otherwise admirable appearance of the book. Such are, for example, those on pages 762 and 772 intended to depict the lithotomy and Trendelenburg positions, respectively, but which are so absurd in conception and execution as to be positively ludicrous, while crudity of execution is particularly conspicuous among many of the cuts devoted to operations on the head. The mechanism of the appliance termed "*irrigateur à vide bouteille*" is rather difficult to comprehend until one realizes that, as pictured on page 21, it is upside down and then the mystery of water flowing up hill is explained. Taken as a whole the chapter on splints is perhaps the most satisfactorily illustrated, though the many ingenious and complicated contrivances shown have to a great extent lost their point now that the tendency is to rely almost wholly on plaster of Paris under the control of the X-ray in the treatment of fractures.

One omission that is surprising in a German book is the absence of any mention in the section on antiseptics of Crédé's work on the bactericidal action of silver in soluble and metallic form. For the most part the work of foreign operators receives adequate consideration and many Americans, McBurney, Fowler, Senn, Halsted and O'Dwyer, are mentioned, though the operation to which the latter's name is attached is dismissed in a paragraph stating that, owing to the large number of instruments and constant supervision it requires, it has as yet found but little favor in Germany.

Taken all in all the book combines so many admirable qualities that editor, translators and publishers have done us a service in presenting it, and our thanks are due to each of them. In view of the difficulties of such a task criticism hardly seems fair, yet a little more time and care expended in the translation would have produced a text infinitely more pleasant to read and free from such errors as that Doyen's angiotribe produces a pressure of 2,000 *kilometers* (p. 247) and that an intravenous infusion of salt solution should be allowed to enter the vessel at the rate of 10 cubic centimeters a second (p. 280).

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Maladies de la Voix. Par André Castex. 8vo, 312 pages. Illustrated. C. Naud, Paris.

Short Talks with Young Mothers on the Management of Infants and Young Children. By Dr. Charles Gilmore Kerley. 12mo, 262 pages. G. P. Putnam's Sons, New York and London.

The Practical Medicine Series of Year-Books. Vol. III. Eye, Ear, Nose and Throat. Edited by Drs. Casey H. Wood, A. H. Andrews, T. M. Hardie. 12mo, 340 pages. Illustrated. The Year-Book Publishers, Chicago.

A Manual of Ophthalmoscopy for Students and General Practitioners. By Dr. J. E. Jennings. 8vo, 180 pages. P. Blakiston's Son & Co., Philadelphia.

Report of the Commissioner of Education for the Year, 1899-1900. 2 Vols. Government Printing Office, Washington.

On Disorders of Assimilation, Digestion, etc. By Sir Lauder Brunton. 8vo, 495 pages. Illustrated. The Macmillan Company, New York.

The Standard Medical Directory of North America for 1902. Quarto. 924 pages. G. P. Engelhard & Company, Chicago.

The Accessory Sinuses of the Nose. By Dr. A. Logan Turner. 8vo, 211 pages. Illustrated. Longmans, Green & Co., New York.

Diseases of the Intestines. By John C. Hemmeter. Vol. I, 8vo, 742 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

The Practical Medicine Series of Year-Books. Vol. III. 12mo, 346 pages. Illustrated. The Year-Book Publishers, Chicago.

The Elements of Physical Chemistry. By Harry C. Jones. 8vo, 565 pages. The Macmillan Company, New York.

Transactions of the American Orthopedic Association. Fifteenth Session. Vol. XIV. Philadelphia.

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ORIGINAL ARTICLES.

THE PRESENT STATUS OF SERUMTHERAPY IN TYPHOID FEVER.[1]

BY JAMES EWING, A.M., M.D.,
OF NEW YORK;
PROFESSOR OF PATHOLOGY IN CORNELL UNIVERSITY MEDICAL COLLEGE.

IN view of the very successful results that have been obtained by the serum treatment of diphtheria and the preventive therapeutics of rabies, the question naturally arises as to why no great success has followed very numerous attempts to affect favorably the course of typhoid fever by serumtherapy. On many grounds a comparison of the clinical features and pathological characters of diphtheria and typhoid fever would seem to indicate the latter disease rather than the former as the one more favorable for the successful inauguration of a system of serumtherapy.

Diphtheria is a disease which commonly develops with great rapidity and without announcing its advent by distinct premonitory symptoms. Its focal lesion in the pharynx often reaches extensive development in a few hours; its toxins are thrown into the circulation in overwhelming doses and produce grave cellular alterations in vital tissues in the first stages of the malady. Typhoid fever, on the other hand, is slowly ushered in, as a rule, by several days of premonitory symptoms or mild illness, serious anatomical lesions are not present till the second or third week, ample time is offered before either the intestine is gravely damaged or the internal viscera exhibit degenerative changes for the administration of any agent that may have power to inhibit the growth of the bacillus typhosus or to neutralize its toxins. Yet the mortality of diphtheria has been greatly reduced by specific antitoxin treatment, while typhoid fever has long remained untouched and almost unapproached by advances in the knowledge of artificial immunization.

It may be of interest to point out some of the reasons which may be advanced to explain this failure to solve the problem of successful serotherapy of typhoid fever. In the first place it develops more clearly each year that there are fundamental differences in the nature of these two bacterial diseases which were long overlooked. In diphtheria the bacteria multiply rapidly on superficial mucous surfaces and seldom reach the general circulation, producing their effects by diffusible toxins absorbed from the focus of infection. Successful isolation of the bacillus diphtheriæ from the circulating blood is of rare occurrence, and the few cases in which it has been accomplished serve only to demonstrate the almost invariable rule that in fatal diphtheria the blood is free from the specific bacterium of the disease.

In typhoid fever, while earlier and several recent studies by Pasquale, Thiemich, Kraus, Ettlinger, Stern, James and Tuttle, Neuhaus, Fränkel, and Klein, indicated that the blood seldom yields positive culture of bacillus typhosus, very recent reports from several sources prove that with more careful technic the bacillus can be isolated from the blood in the majority of cases, even comparatively early in the disease. This conclusion has for some time been favored by the increasing proportion of successful attempts to obtain the bacillus from the cutaneous lesions. Thus, Soudakoff and Thiemich obtained the bacillus in fifty per cent. of their cases from the rose spots, and more recently Neuhaus obtained it from the skin in thirteen of fourteen cases.

Regarding the occurrence of the bacillus in the blood Kraus and Kuhnau showed that there is a type of typhoid septicemia in which the microorganism is practically always to be isolated from the blood. During the past year several studies have shown that even in routine cases a much higher proportion of successful results may be obtained than had been regarded as possible. Thus Castellani was successful in twelve of fourteen cases. Schotmuller has contributed an important study of sixty-eight cases in eighty-five per cent. of which he found the bacillus in the blood. He distributed twenty c.c. of blood from the basilic vein in several flasks containing from 200 to 300 c.c. of broth, the dilution nullifying the bactericidal action of the blood, while the large bulk of blood tended to insure a successful result if any bacteria were present. This result emphasizes the absolute necessity of drawing conclusions in this field only from the use of considerable quantities of blood. Almost equally successful were Auerbach and Unger, who planted only from ten to thirty drops of blood in 300 c.c. flasks of bouillon. Examining the broth in hanging drops they sometimes found at first a very scanty growth of non-motile rods or threads which, when replanted on fresh broth free from blood, gave an abundant growth. With these small quantities of blood they had seven positive results in ten cases.

These studies and others of similar import which are known to be in progress prove that typhoid fever in the great majority of cases, whether fatal or favorable, is a form of septicemia; and, as many features of the disease have led us to suspect that the symptoms of typhoid fever are not referable so much to the intestinal lesions as to the presence of the bacteria in the blood and viscera, the increasing frequency of reports of typhoid infection without intestinal lesions thus becomes quite intelligible.

[1] Read before the New York County Medical Association, Nov. 18, 1901.

Typhoid fever therefore is largely a bacteremia, while diphtheria is a toxemia.

Another important addition to the knowledge of typhoid fever has resulted from recent bacteriological studies of the blood and the investigation of the agglutinative properties of the serum, which tend to show that there is a wide variation in the characters of the bacteria concerned in the disease. Babes was among the first to point out various marked differences between cultures of bacillus typhosus isolated from typhoid cadavers. Some of them produced gas and indol, properties which tended to throw them into the colon group. He usually obtained from the same cadavers cultures of typical typhosus, and, while denying emphatically that the irregular types were capable of producing typhoid fever, he admitted that they probably influenced the character of the disease, since they acted in animals just as did typhosus. Many observers have reported extreme differences of virulence in cultures obtained from typhoid cadavers. Remy finds that when typhosus is grown along with colon bacillus the former loses its susceptibility to agglutination and may be so far altered as to be unidentifiable by any or all of our present means.

On the other hand, studies of the colon bacillus have shown that this species very frequently develops characters which render its separation from typhosus extremely difficult. Sternberg isolated several species of coli from water which failed to produce indol or gas or to coagulate milk, but were agglutinated by high dilutions (1-10,000) of typhoid serum. Decleman also obtained colon cultures which produced no gas and did not coagulate milk. Remy finds that when grown with typhosus the colon bacillus regularly loses its capacity to produce gas and indol. Jatta found that he was able to isolate from diarrheal stools at different periods of the disease different types of coli which varied in their capacity to coagulate milk and were agglutinated in varying degrees by blood serum.

The hope that the agglutination test would prove a ready means of separating typhosus from the colon bacillus has not been realized. Stern found that typhoid serum may agglutinate coli even more strongly than typhosus, especially colon cultures from the stools of the typhoid patients whose serum was employed in the test. Widal and Nobecourt found a patient whose serum agglutinated typhosus only in 1-20 dilution, but clumped a culture of coli from an abscess in a dilution of 1-12,000. Eight days later the serum had no effect on typhosus while retaining its power over the colon bacillus. Beco concluded that typhoid serum agglutinates most colon cultures, sometimes very actively but always less strongly than typhosus, if an extremely powerful serum be used.

This conclusion, while generally holding, has found exception in the experience of Widal, Sternberg, Remy and Jatta. Moreover, Jatta showed that this high agglutinating power of typhoid serum over the colon bacillus could not be referred to secondary infection by the bacillus coli, since it was present in the serum of animals receiving injection of typhosus only. Not only has the agglutination test failed to distinguish typhosus from coli, but it appears to be unable to separate all cultures of these germs from other more distantly related members of the intestinal flora, since it has been shown by Gruber, Durham, Sternberg, Deelman, Remy, and many others, that typhoid serum even in comparatively high dilutions may agglutinate Gaertner's bacillus enteritidis, Nocard's bacillus psittacosis, and Petruschky's bacillus fecale alcaligenes.

The accumulating evidence of studies in these related fields seems therefore to justify Durham's division of this entire group of intestinal bacteria into three, instead of two, classes, and to warrant the common application of the term "Gaertner's group" to those species intermediate between typhosus and coli, with which the production of gas and indol and the coagulation of milk, while often present in traces, are too uncertain to warrant their acceptance either as genuine typhosus or as genuine coli. An important practical bearing of these conclusions was not apparent until bacteriological studies of the blood of typhoid fever began to show that the typical symptoms of this disease may be associated with the presence in the blood, as the undoubted etiological agent, of bacteria which produce gas and indol, coagulate milk, and are not agglutinated by typhoid serum.

The credit of having first drawn definite attention to the fact that some irregular forms of typhoid fever are referable to infections by bacteria intermediate in type between Eberth's bacillus and the colon bacillus belongs originally to several French observers who combined the results of study of the bacteria isolated from the stools and the agglutinating properties of the serum of these patients. Achard and Bensaude appear to have published the first complete description of a case of this type in 1896.

In 1897 Widal isolated from an abscess in a phthisical patient a bacillus resembling coli, but producing no indol and not fermenting lactose, while the patient's serum, which had no effect on typhosus or on cultures of genuine coli, agglutinated this bacillus in dilution of 1-1,000. In 1898, Gwyn isolated from the circulating blood of a case of typhoid fever a bacillus which produced no indol and did not ferment lactose, but fermented glucose, while the patient's serum, inert with typhosus, agglutinated this bacillus in 1-200 dilution. Shortly before this Brill had described an epidemic of typhoid fever of a type which probably belonged in this class, since in none of the eighteen patients was Widal's reaction obtained. Unfortunately there were no bacteriological analyses of the blood, while cultures of the stools yielded the colon bacillus. More recently Schotmuller, in five of sixty-eight routine cases of typhoid fever, found bacteria in the circulating blood which on biological characters must be classed as intermediate between bacillus

typhosus and bacillus coli. These cases were usually of mild type and not such as might be expected to show bacteremia. The blood sera failed to agglutinate cultures of genuine typhosus, but acted strongly on the bacillus obtained from the blood in each case, and all of five sera agglutinated all the cultures in the series. In about the same proportion of cases, five out of sixty-two, studied by Kurth, the diagnosis of paratyphoid inflection was made, either by the presence of specific agglutinating properties in the serum, or from the isolation from the stools, or urine, of bacteria which produced no indol, fermented glucose, and in other characters resembled Gaertner's group. These cultures lost their virulence when heated to 60° C. and were harmless when administered by mouth to guinea-pigs and rats. The serum of these patients had no effect upon bacillus typhosus nor on bacillus enteritidis, but actively agglutinated the particular cultures isolated from the stools.

Rodet recently isolated from three typhoid cadavers bacilli which produced no indol and no gas, but grew on potato like the colon bacillus. The initial cultures were indifferent to both typhoid and colon serum, but subcultures were agglutinated by both sera in high dilutions, most actively by the colon serum. Animal inoculations gave a serum which actively agglutinated typhosus. These apparently contradictory results belong to the class on which is based Roux's theory that the colon and typhoid bacilli are identical species with varying and interchangeable physiological properties. The exact characters exhibited by one representative of the paracolon group of bacteria, isolated from a case of post-typhoidal osteomyelitis, have been very minutely studied by Cushing.

The above observations indicate clearly the importance of recognizing the paracolon or Gaertner group of intestinal bacteria as rather frequent excitants of diseases which may be clinically indistinguishable from typhoid fever. They serve to explain the failures of Widal's reaction which are constantly being reported, and they point out the necessity for testing suspected typhoid serum both on genuine typhosus and on cultures of this paracolon group as well.

We have thus far shown that typhoid fever differs from diphtheria, first, in being a septicemia rather that a toxemia; and, second, in that the bacterial agent in the disease, not to mention secondary infections, may show wide variations in its biological characters and in the quality of the agglutinating substance which it causes to be elaborated in the system. Moreover, the toxic products of bacillus typhosus differ radically in their clinical qualities from diphtheria toxin, while their relation to the symptomatology of the disease is very uncertain. Typhotoxin differs from diphtheria toxalbumin in being slowly soluble in water, hence resembling globulin rather than serum albumin. It differs from globulin, moreover, in being very slowly soluble in NaCl. According to Martin it does not possess the digestive properties of diphtheria toxin. Typhotoxin kills rabbits and guinea-pigs very slowly; diphtheria toxin kills them very rapidly (Breiger, Fränkel). In neither animal does it give symptoms of lesions similar to those of typhoid fever, even when acting energetically; yet Remlinger produced rather typical lesions of typhoid fever in rats and rabbits by feeding them on cabbage-leaves soaked in cultures of bacillus typhosus. Peyer's patches were swollen, there were ulcers in the colon and the spleen and lymph-nodes were hyperplastic. Recently, Walker induced typical lesions of typhoid fever in rabbits by combining succesive inoculations of typhoid cultures with immune horse serum and serum extract. Sanarelli grew typhosus in broth for a month in the thermostat, then for eight months at room temperature, finally killing and macerating the bodies of the bacilli at 60° C. for some days; 1.5 c.c. of this extract per 100 grams of guinea-pig killed in twenty-four hours, with bloody diarrhea and lesions which showed a very slight tendency of the toxin to pick out lymphatic structures, but with no specific lesions in Peyer's patches. Martin found the filtrate of virulent cultures to kill animals with subnormal temperatures, but with no specific lesions. Bodies of the bacilli killed by chloroform were much more toxic, but even then did not specially affect Peyer's patches. Bacillus enteritidis gave somewhat similar results.

We may conclude, therefore, that the bodies of typhoid bacilli contain poisons which do not diffuse rapidly in fluids as does diphtheria toxin and which are incapable of producing the specific lesions of typhoid fever. Not only has no specific typhotoxin been isolated from test-tube cultures of bacillus typhosus or from the cadavers of typhoid patients, but Chantemesse and Widal, Gruber and Durham, and many others, have shown that the procedures which render animals immune to infection by the typhoid bacillus are incapable of protecting them against infections of the products and macerated bodies of these bacteria.

The problem of the serumtherapy of the disease is therefore the preparation of a serum which is principally bactericidal and not antitoxic as in diphtheria. It was at first believed that the agglutinating substance represented the essential principle in preventive sera in typhoid fever, but it has gradually become clear that, while the agglutinins are usually abundant in strongly protective sera, such active sera may exhibit very little agglutinating power. Pfeiffer has shown that cholera serum may lose almost all its agglutinating properties while retaining a high degree of protective power. Deutsch, among others, has made very careful observations on the development of agglutinins and of protective substances in the blood of inoculated animals, finding that the two curves are generally but not always parallel, and never superposable. He concluded that all strongly agglutinating sera are also strongly protective, but that highly protective sera may contain little agglutinin.

Although immune serum usually contains both bodies at the same time and loses both in about equal proportions when heated or inoculated with typhoid germs (Gruber and Trumpp), by a comparison of the agglutinating powers of many sera, Pfeiffer and Kolle, Fränkel and Otto, and Deutsch have concluded that these properties have no necessary relation to each other, and certainly do not reside in identical substances. Their conclusion accords with the fact that the highly protective diphtheria and tetanus sera are not agglutinative, while the agglutinating typhoid and cholera sera cannot be made to show highly protective qualities.

Again, several studies have shown that agglutination depends to a large extent upon the characters and condition of the bacteria themselves and is only partly determined by the quality of serum with which they are treated. Johnson found that actively growing cultures of typhosus often tend to agglutinate spontaneously, while slowly growing attenuated cultures do not. Durham found that of sixteen different vibrios the less virulent races were much more susceptible to agglutinins produced by virulent cultures than were those virulent races themselves. Walker's observations seem to show conclusively that typhoid cultures showing greater tendency to spontaneous agglutination and agglutinating more strongly in immune serum are the less virulent cultures. The most that can be claimed is that the agglutination is not the essential feature of protective serum, that agglutination depends very often upon special tendencies of the bacterial species rather than upon the presence of much bactericidal substance in the serum, but that agglutinative power is, however, in the majority of cases, a fairly reliable index of the protective power of a serum.

Serumtherapy in typhoid fever therefore demands the preparation of a principle which is not largely antitoxic, which indeed is not to be measured by its agglutinative powers, but one which responds to the far more critical test of protection by a mechanism which has thus far largely escaped recognition. This means probably that it must be both antitoxic and bactericidal. The evidence that both these properties are demanded may be gathered from the results, on the one hand, of Brieger, Kitasato, Wassermann, Beumer, Peiper, Sirotinin, Bitter, and Bruschetini, all of whom prepared protective sera which were more or less antitoxic, and, on the other hand, of Pfeiffer and Kolle, Funk and Bockenham, and Sanarelli, whose actively protective sera were slightly or not at all antitoxic.

We may now consider briefly what steps have been taken with or without regard to the foregoing principles and what success has been achieved in the preparation of a protective serum for typhoid fever in the human subject. Bockenham inoculated horses, first with the filtrate of typhoid cultures, then with the killed cultures, and then with both alternately, thus securing a serum of considerable bactericidal power and with active protective and curative powers in animals. Pope and Cowen tested this serum on the human subject in a few cases with results which seemed to them more favorable than those secured by any other plan of treatment of the disease. Immediate improvement followed each injection and the course of the fever appeared to be distinctly shortended. Bockenham's serum was prepared, however, without special regard to some theoretical requirements. The first of the theoretical difficulties was recognized by the endeavor to produce a polyvalent serum, *i.e.*, one that would protect against a considerable variety of races, each with special characters, which, as has been shown, may be concerned in the disease. Each of these races seems to require an extremely specialized bactericidal agent and some may be little affected by a serum which rapidly destroys other races of bacillus typhosus. This difficulty was foreshadowed by the conflicting results of Widal's test, the serum of some convalescent patients failing entirely to agglutinate particular cultures of typhosus, at least partly because the serum did not contain the special agglutinin for that culture, although probably quite capable of agglutinating a bacillus which came from the patient's own intestinal tract.

This idea of the necessity of a polyvalent serum was first suggested by Bockenham in connection with the manufacture of antistreptococcus sera. The idea was followed up systematically by Tavel and Walker, who inoculated horses for a period of from one to three years with several species of bacillus typhosus, finding that the specialism in the immunizing bodies required to protect is very marked and that greater specialism is demanded as the protective qualities increase. These results probably indicate the real difficulty in the prepation of practically effective sera for the human subject. Although Walker secured enormous agglutinative powers in his horses (1-2,500,000), this power was exhibited only against the particular culture longest employed in the inoculations. Against other cultures its agglutinative qualities were far less and proportional to the length of treatment by each culture. Tavel tested serum drawn after one year's treatment of horses, on typhoid patients, finding that it abolished the plateau stage of pyrexia, the fever falling by lysis and the patients making rapid recovery. Other cases treated by two-year serum are soon to be reported, and three-year polyvalent serum is now being tested (Walker).

A second practical step in advance followed the recognition that the protective substances are not equally distributed in the body. Johnson and McTaggert found that the whole blood possesses more agglutinins than the serum. Wassermann (1899) tested the protective qualities of extracts of the different organs and concluded that the typhoid antibodies are produced in the spleen; but almost at the same time Roth's studies in a similar line led to negative conclusions. Jatta's studies indicated that within from two to three days after inoculation the agglutinins

of the spleen exceed those of the blood serum, but later the serum is always the stronger. He did not test the protective qualities of the spleen and his results were amplified by Castellani, who found that while the serum contains more agglutinins the spleen has more protective bodies.

Deutsch took up the matter in a systematic and exhaustive manner. He found that the spleen and marrow usually show greater bactericidal power than the blood serum, which he attributed to the abundance of leucocytes in these organs. Yet in splenectomized animals bactericidal properties developed as in the normal animals, indicating that the function of the spleen may be fully assumed by other tissues. Bactericidal substances made their appearance on the fourth or fifth day of infection, simultaneously with the disappearance of leucocytes from the peritoneum, the site of inoculation. Removal of the spleen on the third day greatly reduced the animals' chances of recovery apparently through the removal of already formed bactericidal substances. The lymphatic organs contained less agglutinin than the serum. Agglutinins developed perfectly in splenectomized animals, but splenectomy on the third to fifth day of infection sometimes prevented their formation. He found marked discordance between the bactericidal and agglutinating properties of the spleen, and hence concluded that these properties reside in different substances. Deutsch made the interesting discovery that lung tissue in the early stages of infection has from ten to twenty times as powerful agglutinating action as the serum. Later, the difference was not so great. Normal lung was also found to be from ten to twenty times as active as normal serum of guinea-pigs.

These researches of Wassermann and Deutsch represent the acme of progress in the investigation of immunity in typhoid fever, and they culminate, as have many previous studies, with strong indications that immunizing bodies are the product chiefly of the colorless blood and lymph-cells. Daubler's partly contrary results in this field, however, here deserve mention, since this investigator found that during the process of immunization against typhoid infection the leucocytes and purulent exudates do not increase in bactericidal properties, but remain the same throughout.

The above results have to some extent received a practical test on the human subject in the attempt of Jez to influence typhoid fever by injections of visceral extracts from infected animals. Proceeding from the principle that the normal central nervous tissue possesses both preventive and curative properties in tetanus, Jez tried extracts in glycerin, alcohol, salt, broth, and water, of the liver, spleen, lymph-nodes, thymus, marrow, brain and cord, of healthy rabbits, administering them subcutaneously and by mouth, but without effect on typhoid infection of rabbits. He then inoculated rabbits with 10 c.c. of typhoid culture, the animals dying on the fourth day. Extracts in alcohol and water of the thymus, spleen, marrow, brain, and cord proved actively preventive, when 10 c.c. were injected with 10 c.c. of culture. An extract of the above tissue made with alcohol, water, salt, and glycerin, to which a trace of carbolic acid and pepsin was added (details not given), had no bactericidal action in the test-tube and gave no Widal reaction; but when given hypodermically is said to have had a surprising effect upon the course of typhoid fever in eighteen cases on which it was tried. The fever was reduced, pulse improved, sweats induced, and the general nervous condition much improved. Glucksmann failed, however, to obtain any curative action from Jez's extract on typhoid infection in rabbits, and Walker, replacing Jez's extractive solution with curative horse serum, failed to find any greater curative powers than were obtained from horse-serum alone. Jez's results lack, perhaps, the scientific certification of the work of Tavel and Walker, but represent a line of work in the right direction.

Another independent line of investigation has been caried on by Chantemesse in Paris, from which especially successful results have been expected, inasmuch as this investigator claimed, in 1898, to have devised a method capable of furnishing extremely active and specific typhotoxin. Chantemesse cultivated the bacillus upon the filtrate of an emulsion of splenic tissue digested with pepsin, carefully avoiding access of air during the manipulations. The fluid thus secured was found to be extremely toxic, especially for horses, but on exposure to air rapidly lost its poisonous properties. Horses were very susceptible to minute doses for at least one year, after which they developed increasing immunity and their blood serum became strongly bactericidal and both curative and preventive for animals. The results of the treatment of 100 cases of typhoid fever with Chantemesse's serum have recently been reported. The total mortality was 6 per cent., which is not better than the results obtained in many such series of cases treated by ordinary methods. Yet two patients began treatment on the twenty-first and twenty-fifth days when already suffering from pneumonia with a pulse-rate of 140. A third case was that of a very fat woman who could not be bathed; she died of a large bedsore present on admission. Three of the patients died of perforation, against which the treatment seemed of little avail. On the other hand, all patients treated before the tenth day recovered. The serum usually caused a rapid and steady defervescence. Or the temperature rose again, the relapse being more severe than the original fever, but a second injection caused a rapid lysis of fever. The injection of the serum invariably caused a pronounced improvement in the general symptoms, as attested by all the clinicians who observed the course of Chantemesse's treatment in the Paris hospitals.

It remains for investigators who possess experience and extensive equipment to combine and extend the results already obtained in the two aforementioned fields and to determine what

success can be secured in the treatment of typhoid fever by injections of serum and visceral extracts from animals which have been treated with a view to producing polyvalent immunizing bodies. It would appear that the outlook in this field is fairly indicative of success, if not in the preparation of a curative serum for typhoid fever, then at least in essential progress in the knowledge of artificial immunization both in this disease and in other infections which have heretofore baffled all attempts at serumtherapy.

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SURGICAL COMPLICATIONS OF TYPHOID FEVER.

BY ROBERT ABBE, M.D.,
OF NEW YORK;
ATTENDING SURGEON TO ST. LUKE'S HOSPITAL.

It would be strange, indeed, if the very complicated human body were swarming with untold myriads of disease-producing bacilli of typhoid fever and no trace were left of surgical complications. Judging from my own experience in past years, the physician, as such, is apt to regard this disease as rightly relegated to the domain of medical practice; so that it is profitable for a few moments to review the surgical conditions which are occasionally seen in connection with or sequent upon the few weeks of fever.

An analogous series of complications may be found in other infections, such as that of tubercle, and we can see why much the same causes bring about similar complications. The study of one aids us to understand the other. A more perfect research of tubercle infection has been made far in advance of any other, because it is a more readily demonstrable bacillus, its life course is slower and the experimental research more satisfactory. But one fact derived from the research of tubercle infection can be mentioned at this point to elucidate corresponding facts in the subject we are to discuss. It has been demonstrated that when tuberculous fever is induced in animals and a local injury (such as fracture of a bone, injury of a joint, or local irritation of an internal part) takes place, there is a local demonstration of the disease. The same is true of pyogenic coccus infections. We have but to enumerate the varied surgical troubles incident to typhoid fever and we see at once the relation of cause and effect—the colonizing of bacilli at the site of injury. This point should be ever present in the mind of the physician.

To begin with, let us notice the bone abscesses which most practitioners have encountered in the late weeks of occasional typhoid cases. They have been seen in almost every bone of the body, but the relative frequency with which they occur in such parts as are subject to bruises is so far an argument of their causation that one is struck by the fact. The tibia, which by its exposed position is most subject to injury (or what the Germans call "insults"), is most often the seat of abscess. Taken altogether the bones of the lower extremities are oftener affected than all others of the body, as 112 to 104, according to Keen, while, considering the bones nearest the surface, compared with those buried under muscle or within the body, we find the contrast is 180 to 51.

Enough is thus in evidence to show that a slight accidental injury to the patient will often determine a swarming of the prevalent bacteria to the part, which the weak resistance of the tissues fails to conquer, and an abscess results. In most of these a culture of the pus reveals a pure culture of the typhoid bacillus, but in others a mixed staphylococcus and typhoid, and in some a pure staphylococcus. This latter demonstration is consistent with the complicated toxemia of mixed infections from ulcerated Peyerian patches and other sources. The same abscess development is seen in the course of muscles and shows a low grade of inflammation. In the synovial sheaths of the tendons and in joints there is frequently initiated a synovitis from which, however, the infecting bacillus quickly disappears and the irritation is almost sure to quiet down, very rarely leaving fibrous ankylosis or pus, and only in the hip-joint producing mechanical trouble. Here, strangely enough, there are many cases on record of synovial distention with luxation of the femur which has remained permanent after the

convalescence which keeps the patient so long on his back that the trouble is overlooked.

The next most important and destructive deposition of bacillus colonies is in the laryngeal cartilages. Study of this shows that in the later weeks of convalescence there is, not rarely, a tumefaction of the internal laryngeal mucous membrane from abscess, due to destructive necrosis of the cricoid cartilage or of the arytenoids. The other cartilages are very much less likely to be affected. The complication is extremely dangerous and fatal from suffocative action in over 75 per cent. of the cases not operated upon; in those in which tracheotomy has been done, even including extreme cases, the mortality has been reduced to about 50 per cent.

It is only too often demonstrated that, when hoarseness and beginning obstruction are noticed, the rapidity of the edema is so marked that tracheotomy is a matter of emergency. The quick consideration of the importance of hoarseness in this fever and the safeguarding of the patient by tracheotomy is to be borne in mind.

One of the most common and distressing complications of typhoid is femoral phlebitis. While this is not rare in any septic infection, it is not uncommon for it to be followed in succeeding years by large varicose veins which become a surgical charge. Indeed, it has been frequently of so severe a grade that blockade of the iliacs and gangrene of the leg have often been seen. This latter mishap has also been many times demonstrated to follow endarteritis of the popliteal, tibial and femoral in typhoid fever.

There may be no demonstrable determining factor in causing a deposition of colonies of migrating bacilli, but the probability is that the sluggish current of blood in the lower extremities allows their growth without other cause. It has been shown that the endarteritis is equally seen in the right or left foot, producing gangrene, while the phlebitis of typhoid attacks the left femoral vein four times as often as the right. This is explained by Keen by the anatomical fact of the left common iliac vein passing below the right common iliac artery and thus receiving unequal pressure. Though these extreme varicosities of the left superficial veins even extend to the femoral and pubic, they can be safely and permanently relieved by operation without endangering the life of the foot, as I have had occasion to demonstrate.

As in other septic affections, we see parotitis not infrequently in typhoid; indeed the sympathy between the parotid gland and ulcerative lesions of the abdominal viscera was noted thirty years ago by Paget, and one must regard it as a conspicuous target for many forms of septic infection. In most cases it subsides without surgical treatment, and, for fear of the easily produced parotid fistula, I think the indurated parotid swellings suspected of harboring pus should never be incised until pus has been demonstrated by time or aspiration.

We come now to speak of the most interesting phase of typhoid surgery, peritonitis from perforating ulcers of the intestine.

Before we consider that, however, I cannot forbear noting the frequent call for consultation to differentiate between appendicitis in its milder forms and the early pain in the appendical region in typhoid. Undoubtedly the two closely resemble each other, but a waiting policy clears all doubt away, and as the dictum of a few years ago, that "the time to operate on appendicitis is when you recognize it," has passed, the mild symptoms do not call up profound anxiety as of old.

Perforation of the intestine in typhoid always takes place in the area of the ulcerated Peyerian patch and invades the peritoneal coat not oftener than once in a hundred cases. It is of the utmost interest and importance to know whether preliminary symptoms of extreme ulceration ever show in a tender point a local crepitus. If so, one might anticipate disastrous perforation by ice application and opium. From cases I have seen in both typhoid and gastric ulcer, in which a fine crepitus of limited area coincident with a point of tenderness were recovered from, I have in my mind no question that impending perforation may be cured by Nature, but this is difficult to demonstrate.

Having had occasion to operate for peritonitis after perforating typhoid ulcers in five patients, it is of interest to draw the picture of the surface of the bowel, as it appears at operation—for few who simply treat the medical case as such can realize it. When the intestine which harbors the diseased patches which have not ulcerated is passed between the fingers, the general thickness of the gut is not exaggerated, nor is its peritoneal surface inflamed or highly congested except when suppurative peritonitis has been set up; but the patch itself can be felt thickened. In some cases several patches near the one which had perforated were covered by a blanket of greenish lymph —nearly corresponding to the area of the Peyerian patch—while the neighboring surface was simply inflamed and smeared with foul fluid. Between the coils were scanty flakes of exudate and free yellow fluid as in any septic peritonitis—with the further appearance of yellow typhoid stool and gas. The gas which continually escaped from the moment of perforation distributed itself among the bowels, but did not separate the liver from the costal pleura. This was conclusively shown in one case; yet I have seen free gas in the peritoneum when ulcer of the stomach or of the duodenum had perforated, which did separate the liver from the ribs so that the hand could be laid flat in the space. The presence of the apron of omentum accounts for this difference, which I have not heretofore seen noted.

After perforation has existed some hours there will be found one or two pints of yellow fluid in the pelvis and lumbar fossæ. The opening in the small bowel will always be seen to be in the center of a gangrenous patch within fifteen or twenty inches of the caput coli, so that it can be

quickly found. On an average it is large enough to admit the end of a lead pencil, and at every peristaltic movement, or in handling, gas and yellow fluid bubble out. Thus we have a picture of what has been going on from the moment of perforation to the moment of operation. If, now, we can imagine that at the first a slight leakage occurs, instead of a sudden explosive discharge of gas and fluid, it is entirely conceivable that a speedy exudate would be thrown about the spot and the abscess would be walled in. There is little doubt that this has happened, as Fitz has shown in a very small number of cases which seem to have shown the history of perforation and made spontaneous recovery. We feel that if such slow beginning were recognizable, it would be possible to help Nature by administering quickly sufficient morphine to paralyze all peristaltic action, keeping the patient absolutely quiet and applying ice over the lower abdomen. This is consistent with the best treatment of peritonitis from appendix perforation, which has been well epitomized by Ochsner, when he says that almost all acute attacks can be controlled by "ice, opium and starvation" for three days. But unfortunately explosion is more common than leakage in typhoid perforation, and hence acute tearing pain is the first evidence of trouble.

The pain comes usually in the third or fourth week, when the disease is running a comfortable course or convalescence has begun. Shock followed by a temperature of 105° or 106° F. supervenes, and rapid increase in leucocytosis is seen. In spite of the depleted condition of the patient, Nature makes a heroic effort to overcome the new trouble, and we see almost as good a quality of reparative lymph in the abdominal peritoneum as in cases of corresponding gravity, stricken down in otherwise fine health from other intra-abdominal injury.

Statistics show that most recoveries from operation for perforation have come from delaying until shock has passed, and twelve hours after is regarded as the most favorable period. If operation can be done under favorable circumstances within twelve to eighteen hours the recoveries rise to 32 per cent. and fall again to 13 per cent. for operation after twenty-four hours.

The operative care of perforative peritonitis is now laid out on such well defined lines that I need not mention it here. One addition has been made to the surgery of the subject by Finney's suggestion that at the earliest suspicion a competent surgeon should be requested to make a small exploratory opening of the abdomen under cocaine anesthesia, which is harmless to the patient, if nothing serious is found, and is the only infallible way of knowing if extravasation has occurred. If this principle of action be carried out in all our hospitals—as it may easily be—we shall soon add greatly to creditable reports.

My own five cases show one recovery. Two were in soldiers of the Spanish War, half moribund with typhomalarial infection when the perforation occurred; both died. The other would have been, I think, a typically good patient, taken in the third week with violent pain and vomiting. In an hour and a half his temperature was 106° F. The patient was out of town and perforation was suspected, but I was not summoned until more than twenty-four hours had passed. Operation was done twenty-seven hours after perforation, but a big opening fifteen inches from the colon was found and liberal extravasation had occurred. A dozen oval areas of greenish protective lymph marked the site of inflamed patches, but one had become gangrenous and given way. Quick and thorough operation was tried, though he had an almost hopeless aspect when it was done. The opening in the bowel was stitched in the wound with a tube held in by a pursestring suture inverting the opening about it, so as to drain off gas and fluid from the distended and paralyzed intestine; but the patient had already been so far infected that he lived less than a day after operation. The fifth case was a duplicate of this in an exhausted patient. Operation was done thirteen hours after perforation. The latter was enlarged and anastomosed with sutures to a nearby portion of bowel. The anastomosis worked well, but the patient was too exhausted by typhoid and survived only three days.

The brief time allotted in which to speak of the physical aspects of this disease has prevented my touching on many other complications: but enough has been said to stimulate every man to be alert to these possibilities and to emphasize the pleasant assurance that surgery is coping with the most desperate of them when a timely union of medical and surgical forces is permitted.

13 West 50 Street.

THE DETECTION OF TYPHOID BACILLI IN THE FECES AS A DIAGNOSTIC TEST OF TYPHOID FEVER, AND A COMPARISON OF THIS TEST WITH THE WIDAL REACTION.[1]

BY HENRY A. HIGLEY, M.D.,
OF BROOKLYN, N. Y.

While most cases of typhoid fever can be diagnosed sooner or later by clinical symptoms alone, it is nevertheless a fact that in many instances purely clinical observations do not lead to a diagnosis until valuable time has been lost both in the institution of the treatment and in the sanitation of this disease. The value of the Widal test has of late considerably fallen in general estimation. This I believe to be due to the indiscriminate application of this test to both typical and atypical forms of typhoid fever and, furthermore, to the faulty technic frequently employed in making the test. Since due consideration has been given the later phase of the subject in a recent communication (Medical News, Jan. 11, 1902) it is not my intention to further discuss it here.

Nearly two years ago I began a series of ob-

[1] A Study from the Department of Pathology of the College of Physicians and Surgeons, Columbia University, New York.

servations in order to ascertain the frequency with which the Bacillus typhosus could be isolated from the feces of typhoid patients and to determine the value of such isolation tests in the routine diagnosis of the disease. In order to confirm the clinical diagnosis and for purposes of comparison Widal tests were also carried out in nearly every case. Only those cases are here reported in which I had the opportunity of personally observing the patient until the termination of the disease or until the diagnosis of typhoid fever was positively made.

Technic.—In the Widal tests fresh fluid blood serum was used, the requisite dilutions being made with a capillary pipette.

The method used in isolating typhoid bacilli from the feces was that recommended by Hiss (*Jour. Exper. Medicine*, 1897, Vol. II., No. 6). This method involves the use of a "plating" medium, in which an emulsion of the feces is "plated" in the regulation manner, and of a "tube" medium into which "stab" inoculations are made from the colonies developing in the plating medium after from twelve to eighteen hours' growth at 37° C. If typhoid bacilli be present they develop in the plating medium into characteristic thread-forming colonies which can be readily differentiated from the colonies formed by other bacteria found in feces, such as colon bacilli, etc. In the tube medium typhoid bacilli give rise to a uniform cloudiness without the production of gas, while colon and allied bacilli do not cloud the medium uniformly but always give rise to gas. The typhoid bacilli are therefore isolated by means of the plating medium and further identified by means of the tube medium. In the later portion of this work the original plating medium recommended by Hiss was replaced by another which has recently been devised by Dr. Hiss and which was personally communicated to me by him and thoroughly tested in my routine diagnostic work. This medium is composed of agar, 15 grams, gelatin, 15 grams, sodium chloride, 5 grams, glucose, 10 grams, and water, 1,000 cubic centimeters. The results obtained by the use of this new medium fully equal, if indeed they do not exceed, those given by the original medium. It is certain that it favors the development of a larger number of colonies than does the old medium and thus renders the detection of typhoid bacilli more probable when they are present in small numbers in the feces. Furthermore, its preparation is very simple, no titration or correction of reaction being necessary. In addition to the characteristic reactions given by the bacilli in the Hiss plating and tube media, every typhoid bacillus so isolated was further tested to determine its agglutinating capability.

Epitome of Cases.

Case I.—W. H., aged fourteen years. The prodromal history was characteristic of typhoid fever. No epistaxis. The case was first seen on what was probably the third clinical day. Evening temperature 101.3° F.; pulse 92. Widal reaction negative. An endeavor to isolate the typhoid bacillus[1] from the feces taken on the following (the fourth) day was unsuccessful. No further Widal or "isolation tests" were attempted until the eighth day of the disease, when, with the Widal reaction still negative, typhoid bacilli were isolated from the feces. Very few typical colonies were seen in the plating medium. The characteristic typhoid roseola appeared on the ninth clinical day. Widal reaction on tenth clinical day negative. No Widal attempted on eleventh clinical day. Widal reaction (1-20) positive on twelfth clinical day. Typhoid bacilli were never isolated from the urine, although attempts were made on the eighteenth, twenty-fourth, twenty-sixth and thirty-sixth clinical days.

Case II.—M. B., aged eighteen years. Typical prodromal history of typhoid fever. First seen on what was probably the eighth clinical day. Evening temperature 103.1° F.; pulse 101. Widal reaction (1-30) positive. "Isolation test" negative. Daily "isolation test" negative until the twelfth clinical day, when typhoid bacilli were found in large numbers. No characteristic typhoid eruption was ever observed. Typhoid bacilli were never isolated from the urine, although attempts were made on the twenty-fifth, thirtieth and forty-first clinical days.

Case III.—A. W., aged twenty-seven years. No prodromal history. Onset sudden. First seen on what was probably the third clinical day. Evening temperature 103.4° F.; pulse 109. Chill during the afternoon. Widal reaction and "isolation test" on the fourth clinical day; both negative. No Widal or "isolation tests" until the tenth clinical day, when the Widal test (1-50) was positive, but the "isolation test" still negative. Characteristic typhoid eruption was never observed. Typhoid bacilli were never isolated from the feces, although attempts were made on the twelfth, eighteenth, twenty-sixth and thirty-fourth clinical days. Typhoid bacilli were never obtained from the urine, although attempts were made on the twenty-sixth and thirty-fourth clinical days. The disease ran a typical typhoid course and the reaction persisted (1-50) into convalescence.

Case IV.—C. H., aged twenty years. Indefinite prodromal typhoid history. No epistaxis. First seen on what was probably the eighth clinical day. Morning temperature 101.2° F.; pulse 89. Widal reaction negative. "Isolation test" positive. Many typical colonies were seen in the plating medium. Characteristic typhoid eruption appeared on the ninth clinical day. A positive Widal reaction was never obtained, although attempts were made on the tenth, sixteenth, twenty-first, twenty-ninth and thirty-seventh clinical days. The first attempt to obtain typhoid bacilli from the urine was made on the twenty-fifth clinical day. It was successful. Urine contained albumin and hyaline casts.

Case V.—A. H., aged nine years. Character-

[1] For the sake of brevity the attempts to isolate typhoid bacilli from the feces will hereafter be referred to as "isolation tests."

istic prodromal typhoid history with epistaxis. First seen on what was probably the seventh clinical day. Evening temperature 102° F.; pulse 97. Widal reaction and "isolation test" on eighth clinical day; both negative. Widal and "isolation test" were not attempted until the tenth clinical day, when the "isolation test" was positive and the Widal negative. Widal test next attempted on the thirteenth clinical day and found positive (1-30). Characteristic typhoid eruption was never observed. No attempt was made to isolate typhoid bacilli from the urine until the twenty-third clinical day, when the organisms were found. Urine contained albumin, but no casts.

Case VI.—C. W., aged fifteen years. Fairly characteristic prodromal typhoid history. First seen on what was probably the fourteenth clinical day. Evening temperature 104.3° F.; pulse 112. Widal reaction negative. "Isolation test" positive. Characteristic typhoid eruption had not been previously and was not subsequently observed. Further Widal tests were not attempted. No attempt was made to obtain typhoid bacilli from the urine.

Case VII.—E. M., aged twenty-two years. Characteristic prodromal typhoid history. No epistaxis. First seen on what was probably the fifth clinical day. Evening temperature 102.2° F.; pulse 100. Widal reaction and "isolation test" on sixth clinical day; both negative. Characteristic typhoid eruption appeared on the seventh clinical day. Widal reaction and "isolation test" on the seventh clinical day were still negative. "Isolation test" was next tried on tenth clinical day; positive. Widal still negative. Widal test was next tried on twelfth clinical day; positive (1-30). Typhoid bacilli were never isolated from the urine, although attempts were made on the twenty-eighth, thirtieth, thirty-second and thirty-eighth clinical days.

Case VIII.—O. H., aged twelve years. Characteristic prodromal typhoid history. No epistaxis. First seen on what was probably the tenth clinical day. Evening temperature 103.3° F.; pulse 106. "Isolation test" positive. Widal reaction negative. Widal reaction was next tried on the twelfth clinical day; negative. Widal reaction was next tried on fifteenth clinical day; positive (1-50). Characteristic typhoid eruption was never observed. First attempt to isolate typhoid bacilli from the urine made on the fifteenth clinical day; negative. Next attempt on the twentieth clinical day; positive. Urine contained albumin and hyaline and granular casts.

Case IX.—E. S., aged nineteen years. Indefinite prodromal typhoid history. No epistaxis. First seen on what was probably the seventh clinical day. Evening temperature 103° F.; pulse 89. Widal reaction (1-10) positive. "Isolation test negative." Characteristic typhoid eruption appeared on the ninth clinical day. "Isolation test" was next tried on the fourteenth clinical day; positive. Typhoid bacilli were never obtained from the urine, although attempts were made on the twenty-first and thirty-first clinical days.

Case X.—F. W., aged eighteen years. Indefinite prodromal typhoid history. No epistaxis. First seen on what was probably the twelfth clinical day. Evening temperature 103.5° F.; pulse 110. Widal reaction negative. "Isolation test" positive. Widal reaction was next tried on the nineteenth clinical day; positive (1-20). Characteristic typhoid eruption was never observed. First attempt to isolate typhoid bacilli from urine was made on thirty-third clinical day; positive. Urine contained albumin and hyaline casts.

Case XI.—H. A., aged twenty-five years. Characteristic prodromal typhoid history with epistaxis. First seen on what was probably the eighteenth clinical day. Evening temperature 104.1° F.; pulse 112. Widal reaction (1-50) positive. "Isolation test" negative. "Isolation test" was tried on the twenty-first clinical day; positive. Characteristic typhoid eruption was never observed. No attempt was made to isolate typhoid bacilli from the urine.

Case XII.—D. M., aged six years. Indefinite prodronial typhoid history. No epistaxis. First seen on what was probably the seventh clinical day. Evening temperature 104.3° F.; pulse 125. Widal reaction and "isolation test" negative. Characteristic typhoid eruption appeared on the eighth clinical day. Widal reaction was next tried on the twelfth clinical day; positive (1-30). "Isolation test" still negative. "Isolation test" was next tried on the fourteenth clinical day; positive. First attempt to isolate typhoid bacilli from the urine was on the twenty-second clinical day; result, positive. Urine contained albumin, but no casts.

Case XIII.—J. B., aged thirty-four years. Characteristic prodromal typhoid history. No epistaxis. First seen on what was probably the tenth clinical day. Evening temperature 103.3° F.; pulse 102. Widal reaction (1-20) positive. "Isolation test" negative, but positive on the next (the eleventh) day. No typhoid bacilli were ever obtained although attempts were made on the eighteenth and twenty-eighth clinical days.

Case XIV.—W. F., aged twelve years. Characteristic prodromal typhoid history. No epistaxis. First seen on what was probably the seventh clinical day. Evening temperature 102.6° F.; pulse 101. Widal reaction and "isolation test" both negative. "Isolation test" positive on the following (the eighth) day. Widal reaction still negative. Widal reaction was next tried on the twelfth clinical day; positive (1-30). Characteristic typhoid eruption appeared on the ninth clinical day. Typhoid bacilli were never isolated from the urine, although attempts were made on the twentieth, twenty-seventh, thirty-seventh and forty-seventh clinical days.

Case XV.—B. A., aged twenty-two years. Indefinite prodromal typhoid history. No epistaxis. First seen on what was probably the seventeenth clinical day. Evening temperature 105° F.; pulse 110. Widal reaction negative. "Isolation

test" positive. Characteristic typhoid eruption was never observed. Further Widal tests were not made. Attempts were not made to obtain typhoid bacilli from the urine.

Case XVI.—H. B., aged eighteen years. Indefinite prodromal typhoid history. No epistaxis. First seen on what was probably the fifth clinical day. Evening temperature 102.8° F.; pulse 89. Widal reaction and "isolation test" negative. Widal reaction was next tried on the seventh clinical day; positive (1-50). "Isolation test" still negative. "Isolation test" was next tried on the twelfth clinical day; positive. Characteristic typhoid eruption appeared on the tenth clinical day. Typhoid bacilli were never obtained from the urine, although attempts were made on the twentieth and twenty-eighth clinical days.

Case XVII.—C. M., aged fourteen years. Fairly characteristic prodromal typhoid history. No epistaxis. First seen on what was probably the seventh clinical day. Evening temperature 102.3° F.; pulse 99. Widal reaction and "isolation test" negative. Characteristic typhoid eruption appeared on the following (the eighth) day. "Isolation test" was next tried on the eleventh clinical day; positive. Widal reaction still negative. Widal reaction was next tried on the sixteenth clinical day; positive (1-20). Typhoid bacilli were never obtained from the urine, although attempts were made on the twenty-fifth and thirty-fifth clinical days.

Case XVIII.—P. F., aged twenty-nine years. Indefinite prodromal typhoid history. No epistaxis. First seen on what was probably the seventeenth clinical day. Evening temperature 105.2° F.; pulse 114. Widal reaction (1-50) positive. "Isolation test" positive. Characteristic typhoid eruption was never observed. Attempts to isolate typhoid bacilli from the urine were made on the twentieth and twenty-sixth clinical days. First attempt negative; second positive. Urine contained albumin, but no casts.

Case XIX.—S. R., aged ten years. No prodromal history. Onset sudden. First seen on what was probably the fifth clinical day. Evening temperature 101.2° F.; pulse 104. Widal reaction and "isolation test" both negative. "Isolation test" was next tried on the eighth clinical day; positive. Widal reaction still negative. Characteristic typhoid eruption appeared on the ninth clinical day. Widal reaction was next tried on the twelfth clinical day: positive (1-50). First attempt to isolate typhoid bacilli from the urine was made on the nineteenth clinical day. Result, positive. Urine contained albumin and hyaline casts.

Case XX.—O. W., aged eighteen years. Indefinite prodromal typhoid history. No epistaxis. First seen on what was probably the seventh clinical day. Evening temperature 102.3° F.; pulse 95. Widal reaction and "isolation test" negative. "Isolation test" positive on the following (the eighth) day. Widal reaction negative. Widal reaction still negative on the twelfth clinical day. Widal reaction was next tried on the fourteenth clinical day; positive (1-20). Characteristic typhoid eruption appeared on eighth clinical day. Typhoid bacilli were never obtained from the urine, although attempts were made on the twentieth and thirty-fifth clinical days.

Case XXI.—D. P., aged seven years. Fairly characteristic prodromal typhoid history. No epistaxis. First seen on what was probably the fifth clinical day. Evening temperature 101.3° F.; pulse 108. Widal reaction and "isolation test" negative. "Isolation test" positive on the following (the sixth) clinical day. Widal reaction negative. Widal reaction was next tried on the eighth clinical day; positive (1-50). Characteristic typhoid eruption was never observed. A complicating measles developed on the ninth clinical day. First attempt to isolate typhoid bacilli from the urine was made on the thirty-second clinical day. Result, positive. Urine contained albumin and hyaline casts. [This case will be subsequently reported in detail.]

Summary.—A review of these twenty-one cases shows that typhoid bacilli were isolated from the feces in twenty, while a positive Widal was obtained in only eighteen.

In making a comparison of the diagnostic value of the "isolation test" and the Widal reaction it is necessary to withdraw from consideration certain of these cases. Case XVIII. should be withdrawn entirely because it was not seen sufficiently early to test the value of either procedure. In considering the "isolation test" Case XV. should be withdrawn for the same reason. In considering the Widal reaction Cases VI. and XV. should be withdrawn, since only one Widal test was made in each; Case X. because the interval between the first and second attempts to obtain this reaction was too long; also Case XI. because it was not seen sufficiently early in the course of the disease.

With these cases eliminated we find that in eighteen cases in which the "isolation test" was successful the average day of isolation was the tenth, while in fifteen cases in which a positive Widal reaction was elicited the average day of its first appearance was the twelfth.

Comparing these procedures from another standpoint we find that in seventeen cases typhoid bacilli were isolated from the feces during the second week of the disease, while in only twelve was a positive Widal obtained before the fourteenth day.

If we compare them from still another and final point of view we find that the earliest day of successful isolation was the sixth and the latest the twenty-first (leaving out of consideration Case XV.), while the earliest appearance of a positive Widal was on the sixth day and its latest primary appearance on the eighteenth day.

It is furthermore apparent from a study of these cases that both of these procedures, when used in combination, make possible the establishment of a diagnosis of typhoid fever in many instances before this could be accomplished by purely clinical observations. In only three, Cases

VII., XII., and XVII., of the twenty-one did the appearance of the characteristic typhoid eruption render the diagnosis positive before it had been established by one of these methods.

In eighteen of the cases attempts were made to isolate typhoid bacilli from the urine. In eight this was accomplished. The earliest day of such isolation was the nineteenth and the latest the thirty-third. In every case in which the bacilli were so obtained albumin was present in the urine

Conclusions.

1. During the second week of typhoid fever, when technical aids are of the greatest value to the practitioner, isolation of typhoid bacilli from the feces gives slightly better results than does the Widal test. These two methods used in combination, when the tests are carefully and persistently made, render material aid in the diagnosis of this disease previous to the appearance of distinctive clinical symptoms.

2. By the use of the Hiss isolation method, especially with the substitution of the new plating medium, the detection and isolation of typhoid bacilli are, to one familiar with bacteriological methods, simple, reliable and practical.

In conclusion it gives me pleasure to express my obligation to Prof. T. Mitchell Prudden and Dr. Philip Hanson Hiss, Jr., for assistance and suggestions during this work.

REMARKS UPON SOME EXPERIENCES WITH THE WIDAL REACTION.[1]

BY E. LIBMAN, M.D.,
OF NEW YORK;
ASSISTANT PATHOLOGIST, MOUNT SINAI HOSPITAL.

In the remarks which I am about to make in response to your very kind invitation, I shall confine myself almost entirely to my personal experience in performing the Widal tests for the various services of the Mount Sinai Hospital from March 1, 1898, to October 15, 1901. These tests, 3,514 in all, made by myself or by the members of the house-staff under my supervision, were all carried out according to the same method. It was always my good fortune to be kept well informed upon the clinical aspects of the cases through the kindness of the successive house-physicians. The uniformity of the work makes the series a valuable one and will, I hope, afford me the opportunity of bringing out some points of interest, although I am well aware that I shall deal mainly with facts that are a part of our general knowledge.

The method used by me admits of quite accurate dilution. It has been detailed in an article in the Mount Sinai Hospital Reports, Volume I., and I shall therefore not describe it fully here. Certain data will, however, be of interest.

Dried blood was used for all our tests, except as mentioned later. The blood was always used within four hours after it had been obtained, often directly after it had dried. It is distinctively disadvantageous to use the blood before it has dried, because the corpuscles interfere with the clearness of the reaction. If the blood is allowed to stand too long before being utilized, for instance, over night, the results are not entirely satisfactory.

The cultures of the typhoid bacillus were prepared as follows: A stock culture on agar was kept from which daily inoculations into bouillon were made. The agar culture is inoculated about every three weeks upon serum-glucose-agar.[1] From this it is inoculated upon agar. The growth on the serum-glucose-agar is often not very marked, but after re-inoculation on the agar-tube a very profuse active growth is obtained. By the use of this method the organism has been kept growing very vigorously for over two years. A potato-tube can be used instead of the serum medium, but the results are not as uniform nor as good.

The bouillon used had an acidity varying from 1 to 1.5 per cent. (phenolphthalein used in titrations). We have usually obtained better growths when Merck's peptone was used in making the medium than when Witte's peptone was employed. As a rule 1 per cent. peptone was used. The bouillon cultures were incubated at a temperature of 32°-35° C. In summer they were not put into the thermostat. The temperature of 35° C. is more favorable than 37° C., because the bacilli are much more motile at that temperature, and we have obtained the best results with the most active organisms. On this point observers have differed very much. The bouillon cultures are used about eighteen to twenty-four hours after inoculation. We have generally used a dilution of 1 to 20. If the reaction proved positive with this dilution in cases that were not typical instances of typhoid fever, the reaction was repeated in a dilution of 1 to 50. The later reactions were all positive.

In some instances in which the cases presented none of the usual symptoms of typhoid fever, except the febrile state, we succeeded in obtaining reactions in dilutions of 1 to 200 or 1 to 300. Such instances will be cited later. The reactions were viewed directly after being made and a large number were immediately positive. The cultures were then allowed to stand twenty minutes on the laboratory table and again examined. No longer time limit was used. We have been very particular in regard to diagnosing positive reactions. We considered a reaction positive when all motility had ceased and when the bacteria were gathered into clumps. A few non-motile bacteria between the clumps do not deter us from calling a reaction positive, nor would one or two motile bacteria in the field.

The process of clumping has been so often described that it is unnecessary to go into the details here. It must be noted, however, that the clumps are very characteristic, and, after a little practice, should not be confounded with clumps that are not due to the specific action of the blood.

[1] Read by invitation before the German Medical Society, November 4, 1901.

[1] For mode of preparation see Libman, Journal of Medical Research, Volume I.

The clump looks like a network, the individual bacilli being distinct; some look bright and some dark. Often all the bacilli in the clump may move and even the whole clump may appear to do so, but so long as there are only a few bacilli between the clumps, and these few are not motile, the reacion must be considered positive.

Since 1899 we have reported only positive reactions, everything else being called negative. It is very risky to speak of "partial reactions" or "suspicious reactions" or "incomplete reactions," etc. These so-called "partial reactions" occur in many diseases. We have noted them often in cases of tuberculosis, and particularly in generalized tuberculosis, the very condition most difficult to differentiate from typhoid fever. I came near having a sad experience in such a case in 1898. A man was admitted to the service of Dr. Manges with a history of headache, constipation, malaise and fever. After arriving at the hospital his fever gradually rose, as it does in typhoid fever, and he developed a roseola on the abdomen. The spleen was enlarged to percussion, but not felt. On several occasions I reported the Widal reaction as being partial. At times I was inclined to call it positive, but the clumps were always indistinct and there were rather too many nonmotile bacilli between. A week after admission he developed ptosis and internal strabismus of the right eye and the further course was typical of tuberculous meningitis. The lumbar puncture fluid when inoculated into a guinea-pig caused marked tuberculous lesions, and the postmortem examination of the case revealed a general miliary tuberculosis.

The reactions in our cases were made every day until a positive reaction was obtained, or until it was made evident that the given case was not one of typhoid fever. When the reaction was persistently negative in a case strongly suspected of being typhoid fever, tests were made with serum obtained by raising a blister. The latter tests were all negative. Most observers, however, have found that serum gives about 10 per cent. more positive reactions than does the dried blood.

Altogether 3,514 tests were made in 860 cases. Of these 334 were cases of typhoid fever. They are distributed as follows: 1898, 233 cases, 855 tests; 1899, 185 cases, 1,030 tests; 1900, 242 cases, 922 tests; 1901, 200 cases, 707 tests.

It will be noted that in 1899 more tests were made and fewer cases examined than in any other year. This was not a matter of chance. It was due to the fact that during most of that year the cultures were incubated at too high a temperature, and we had to test oftener till we obtained positive reactions. In compiling some of the statistics, I have therefore omitted the data belonging to that year.

The results in the cases of typhoid were as follows: 1898, 98 cases positive, 5 negative; 1899, 61 cases positive, 9 negative; 1900, 104 cases positive, 4 negative; 1901, 69 cases positive, 3 negative; total, 334 cases positive, 21 negative.

In percentages the figures are: 1898, 5.1 per cent. negative; 1899, 12.8 per cent. negative; 1900, 3.7 per cent. negative; 1901, 4.16 per cent. negative; total, 5.9 per cent. negative.

The reason for the high figure in 1899 has been given. The totals for 1900 and 1901 give a more reliable figure as they were nearly always made with cultures incubated at 35° C. They include 173 positive cases and 7 negative—in other words, 3.9 per cent. of the cases never gave a positive reaction.

These results agree pretty well with those given by most authors. Thus, Cabot[1] has collected 5,978 cases, 2.8 per cent. of which never gave a reaction, and Kneass and Stengel[2] give a negative percentage of 4.8 per cent. These figures cannot be considered accurate, as they represent the statistics given by a large number of workers using different methods and varying decidedly in their ideas of what constitutes a positive reaction. However, to the practitioner it makes no difference whether 1 per cent. or 10 per cent. of typhoid fever cases give no reaction, because, no matter how few fail to give a reaction, any case he meets may be one of those that never respond to the test.

In the 526 cases that were not instances of typhoid fever *we never obtained a positive reaction*, although the blood of these patients was in many instances repeatedly examined. These cases included all the usual forms of febrile disease. Most writers report instances of the occurrence of a positive Widal reaction in other diseases than typhoid fever. Cabot's collected statistics give 5 per cent. in 5,668 cases, and in 113 cases the blood was examined only once. Kneass and Stengel put the figure at 2 per cent. We are inclined to ascribe many of these positive results to three causes: (1) As Cabot suggests, some were due to errors in technic or judgment. (2) Some of the cases were instances of typhoid fever which clinically resembled other diseases, and in which the observer did not properly examine the case for evidences of typhoid fever. (3) Some were due to previous attacks of typhoid fever.

In trying to give figures as to the day upon which the reaction became positive, we are met by the great difficulty of determining the first day of the disease, which is notoriously uncertain in typhoid fever. Frequently we were even dealing with a relapse, although the patient did not give the history of any previous illness.

In the following statistics I have included only those cases in which the patient gave a history of having been taken sick on a certain day. Only 263 cases could be utilized for the figures. The results for each year expressed in percentages are as follows:

	1898.	'99.	1900.	'01.	
At end of first week	4.55	.0	7.5	10.0	per cent. positive
At end of second week	36.0	21.0	34.0	44.7	" " "
By the 20th day	59.0	42.0	66.0	74.5	" " "
By the 30th day	88.4	92.1	77.0	96.0	" " "

The following table, which relates to those

[1] Serum Diagnosis, 1899.
[2] American Year Book of Medicine and Surgery, 1898.

cases only in which a positive reaction occurred after the blood had failed to give a reaction affords more reliable data.

At end of first week	5.7	per cent. positive
At end of second week	36.	" " "
By the 20th day	67.	" " "
By the 30th day	92.	" " "

The earliest reaction was one found on the third day. This was a case of typhoid fever in a boy nine years of age. The blood gave a positive reaction the first time it was examined. Probably the case was of longer duration than it was supposed to be.

The latest day on which a reaction first appeared was the sixty-seventh.

There were found positive: On the fifth day, 3 cases; on the sixth day, 2 cases; on the seventh day, 3 cases; on the eighth day, 4 cases; on the ninth day, 5 cases; on the tenth day, 5 cases; on the eleventh to fifteenth day, 36 cases.

Only one-third of the cases gave a positive reaction by the end of the second week and two-thirds by the end of the third week. This is the main disadvantage of the Widal reaction. There is, however, a brighter side to these statistics. Many cases of typhoid fever come to the physician for treatment after the illness has lasted a week or more. The important question is, therefore, how soon after the cases are seen do they give a positive reaction? We cannot answer this from data obtained in private practice. We must, therefore, have recourse to the hospital data, and it must be noted that patients arriving in a hospital have, for the most part, been suffering a longer time than those that seek aid from the family physician. The figures at my disposal show that in a series of 295 cases 50 per cent. gave a positive reaction within the first two days after admission; 80 per cent. by the end of the first week, and 90 per cent. by the end of the second week.

The data given above include a number of children varying in age from one and one-half to fourteen years.

Dr. Gershel of the house-staff has recently published an article on the value of the Widal reaction in children[1] and I shall confine myself to a few quotations from his paper.

His observations extend over 84 cases of the disease. Three of the cases never gave a positive reaction. In 115 cases of other febrile diseases a positive reaction was never found. Gershel found that the main facts concerning the reaction were the same in children as in adults, but that the reaction is of greater value in the former, because typhoid fever is more atypical in them and also more difficult of diagnosis. The reaction appeared quite early in some cases that at first presented no distinct symptoms of typhoid fever. On the whole the reaction appeared earlier than in adults. For a description of some very interesting cases of typhoid fever in children resembling pneumonia or meningitis I would refer to Gershel's paper.

[1] Medical Record, November 23, 1901.

Before giving you the conclusions to be drawn from the material I have laid before you, I shall, for the sake of completeness, rapidly cover a few points of interest concerning the reaction. The reaction, in a number of cases, first appeared during convalescence or during a first or second relapse. Sometimes a reaction would disappear and return after a few days, or during the relapse. The reaction was of no use in the prognosis, occurring late in some mild cases and early in some severe ones. This is almost the universal experience. As to the persistence of the reaction, practically no researches were made. In a number of cases, however, it was noted that it disappeared after a few days. In one case, recently observed, a reaction was obtained in a typical case on the day of admission, and not thereafter. This fact is of importance as it probably explains the absence of the reaction in some cases of typhoid fever while under observation.

Many data concerning the persistence of the reaction are given by Cabot. Some of these I shall cite. Widal found the reaction to persist for one year, at least, in 11 out of 40 cases. He also found the reaction positive in one case eight years after the disease, in one case twenty-six years, in one case nine years, in one seven years, and in one eight years. Elsberg examined the blood of six patients who had had typhoid fever one-half to ten years previously and obtained negative results. Biggs and Park found the reaction persist to a marked extent for three or four months only. On the other hand, Grünbaum claims to have found a positive reaction in a patient thirty-seven years after the attack of typhoid fever.

Although these facts force us to acknowledge that the occurrence of a positive reaction in any fever case, if the reaction be the first one made, may be attributable to a previous attack of typhoid fever, we have not encountered any trouble therefrom. Among our many cases which were clinically not typhoid, we never obtained a positive reaction even in those instances in which there was a definite previous history of typhoid fever.

Recently, a patient who had suffered from typhoid fever two years previously at the Boston City Hospital, a positive reaction bein obtained at that time, was admitted with symptoms suggestive of the disease. On the day of admission no reaction was obtained. On the following day it was positive. The occurrence of the negative reaction before the positive one demonstrated conclusively that the man was again suffering from typhoid fever. However, in cases in which the reaction is positive at the first examination it is important to question the patient carefully as to the possibility of a former attack of typhoid fever, unless the clinical picture is sufficiently characteristic to dispel all doubts.

General Deductions.

1. A positive Widal reaction, according to our experience, always means that typhoid fever is or has been present.

2. Partial reactions are absolutely to be ignored.

3. A negative reaction does not exclude the existence of typhoid fever. It occurs under any of the following conditions: (*a*) The reaction has already disappeared; (*b*) the reaction may only appear later; (*c*) the culture may be at fault; (*d*) the case is clinically one of typhoid fever, and there may never be a positive reaction; (*e*) the disease is not typhoid fever. A negative reaction may occur if the patient is suffering from an infection by a paracolon bacillus and still, for the practitioner, the case is identical with one of typhoid fever. Again, a positive reaction may occur when the case is clinically not one of typhoid fever, and yet the autopsy, if there be one, may show the presence of the typhoid bacillus in some part of the body, or it may be found *intra vitam* in the urine, feces, rose spots, blood, or some complicating lesion.

4. Scientifically, the Widal reaction is of the greatest value in establishing the presence of infection by the typhoid organism in cases such as those last referred to and in assisting in identifying the typhoid bacillus.

Practically, it is also of great use, but it is not so valuable as we would wish it to be. Often the diagnosis of typhoid fever is very clear long before we obtain the reaction. In many cases, however, it alone can establish the diagnosis. This is particularly true of the atypical cases in which pneumonic or meningeal symptoms usher in the disease. These cases are more common in children than in adults. We have had the good fortune to obtain positive reactions quite early in many of the atypical cases. The citation of a few cases in this connection will be of interest.

Case I.—Described by Dr. Alfred Meyer in the Mount Sinai Hospital Reports, Volume I. A man, aged forty-four years, was admitted on October 1, 1898, with a history of insomnia and headache lasting one month, loss of flesh and strength. On admission he was found to talk in a rambling fashion; there was slight ptosis of the left eyelid; the tongue deviated somewhat to the right; there was an occasional tremor of the right side of the face and tongue; the voice was tremulous; marked tache cérébrale present; temperature 101.8° F.; pulse 126; respiration 30; physical examination negative. His temperature ran daily between 99 or 100 to 102 or 103° F. On October 7th a Widal test proved negative; temperature 99.2 to 101.2° F. On the 8th it was positive in a dilution of 1 to 50; on the 9th it was again positive. The temperature remained about the same for a number of days and then declined until it became normal on October 25th. All of the symptoms disappeared. At no time was any enlargement of the spleen or a roseola found.

Case II.—Service of Dr. Brill. A nurse suffered from fever, headache and malaise for two days. The spleen could not be distinctly felt; no roseola . After three days' stay in the hospital the temperature became normal. The case appeared to be one of auto-intoxication. The Widal reaction was negative until two days after the temperature became normal. Three days later it was evident that the reaction had not misled us, as the patient again had fever and the next day suffered from severe pain in the splenic region, increased fever and rapid pulse. The spleen was palpable. It seemed very probable that we were dealing with a relapse accompanied by splenic infarction. The temperature and pulse remained high for a number of days, but the subsequent history is not known because the patient returned to her home while still ill.

Case III.—A girl, fifteen years of age, was admitted to the service of Dr. Manges in April, 1898, with the history of several hemorrhages from the bowel on the previous day. There was no distinct previous history. The spleen was found slightly enlarged, the temperature was normal. A Widal reaction was positive up to 1 to 100. The patient gradually recuperated and had fever for a number of days. She was discharged from the hospital, but returned about two weeks later with a relapse with typical symptoms.

Case IV.—A boy who presented symptoms of perforation of the bowels was operated upon by Dr. A. A. Berg.[1] His previous history was negative except for malaise of a few days' duration. On opening the abdomen a small perforation in the ileum was found and was sewn up. The boy had no roseola and no palpably enlarged spleen. His temperature remained moderately high for a few days only. Repeated blood examinations were made, and finally, a number of days after convalescence had been established, the reaction was found positive 1 to 100. This case occurred in the spring of the year, as did also Case III., as noted.

Case V.—A young man, eighteen years of age, was admitted with a history of two weeks' illness. He claimed to have had a chill every evening followed by fever. The spleen was very large and hard. His temperature in the hospital ranged for a few days between 100 in the morning to 103 or 104° F. at night, but he did not have any chills. There was no roseola and no plasmodia were found in the blood. Although a history and the hard spleen suggested malaria, a positive Widal reaction was found. To determine whether typhoid alone was present, or whether he might have a malarial attack at the end of a typhoid, no quinine was given. After a few days the temperature gradually fell to normal, and remained normal until he left the hospital.

Case VI.—The last case that I wish to describe is a particularly interesting one. A man of fifty years consulted me for an illness of four weeks' duration. In 1873 he had been sent to Denver for pulmonary tuberculosis from which he practically recovered. One year ago he had a hemoptysis after a slight exertion. The onset of the present illness was ascribed to taking a cold bath, which was followed by a chill. After this he coughed moderately and had a moderate amount of expectoration. He felt miserable all the time, but did not believe he had fever.

[1] Medical Record, June, 1901.

On examining the patient I found a large area of dulness at the right apex, with increased breathing, subcrepitant and coarse friction râles. The pulse was 120; the heart action poor. The spleen was enlarged to percussion and plainly felt below the free border of the ribs. It appeared to be quite soft. There was no history of malaria and no evidences of cirrhosis of the liver. I found a rectal temperature of 103° F.

Although aware of the fact that the splenic enlargement might be ascribed to a prolonged fever due to the pulmonary condition, I considered two other possibilities; first, that he was suffering from pulmonary tuberculosis *plus* typhoid fever; second, that I was dealing with a case of ambulatory typhoid fever and that the pulmonary signs represented an old, quiescent lesion. The first Widal reaction was negative; the second positive in a dilution of 1 to 100. No tubercle bacilli were found in the sputum. His temperature came down by lysis, taking eight days to reach the normal point. The splenic enlargement disappeared two days after I first saw him. There then appeared two suspicious spots on the back. The temperature remained normal for three weeks, when he had an attack of biliary colic followed by jaundice which still persists.

The final question is, When should the Widal test be made? In hospital work circumstances are such that the reaction can easily be made daily. In private practice this is hardly feasible. It is advisable, however, to test the blood for the reaction early in any fever case the diagnosis of which is in doubt. If the result be negative, as it is apt to be, a later positive reaction stamps the case as one of typhoid fever, and the reaction cannot be attributed to an earlier attack of the disease.

If a case present the classical symptoms of typhoid fever, it is not necessary to examine the blood, except possibly for two reasons: (1) If later in the course of the disease some perplexing symptom-complex arise, one can be sure that the original diagnosis was correct; (2) if some unusual observation is made, the case can be utilized for the purpose of advancing our knowledge of typhoid fever.

If the case be a doubtful one, the reaction should be made every two days until it becomes positive, or until in other ways a positive diagnosis of the condition has been established by the practitioner.

SOME OBSERVATIONS IN TYPHOID FEVER.[1]

BY FRANK SHERMAN MEARA, PH.B., M.D.,
OF NEW YORK.

I HAVE no desire to play the rival of the text-book nor do I wish to exercise overmuch my ingenuity at compilation, an art carried to no small degree of perfection, as analyses of addresses on such occasions and of contributions to an already redundant medical literature will demonstrate; but my purpose is, in the rôle of a humble practitioner, to set before you a few observations drawn from a class of cases the frequency of which makes you all interested participants and should provoke a fertile discussion based on your own experience; I refer to typhoid fever.

So ubiquitous is this disease that it commands universal attention, and so protean are its manifestations that were one conversant with all its bibliography, one, too, might be shunned as carrying the whole Bodleian library in his head. In all standard text-books and systems its description, measured quantitatively, dwarfs that of any other disease. Voluminous monographs have been devoted to it; tomes of no mean bulk have considered its complications, medical and surgical; treatises have been written on its bacteriology; endless articles have been devoted to its treatment, to say nothing of clinical reports, statistical analyses, and hygienic considerations, until even Shakespeariana seem put to shame beside it; and all this is fortunate, for few subjects are worthy of more careful treatment.

Fresh from the medical school and not yet with a hospital training I met my first case of typhoid fever in a country practice and—must I confess it?—promptly diagnosed it as malaria and treated it as such until, as the days wore on, the probability of the case dawned on me. The history was briefly as follows:

A youth, eighteen years of age, sent for me because he felt some malaise and appreciated the fact that he had some fever. He reported that he had taken cold three days before. His temperature for 103.8° F.; pulse, 80, and dicrotic. The physical examination was negative except for a reduplication of the second sound of the heart. His temperature gradually fell, showing a variation of about one degree between morning and evening for three weeks. All this time his pulse varied but little from normal, he was perfectly comfortable, but so drowsy as to be uncomplaining of his detention in bed. His appetite was excellent. The spleen could not be felt nor were spots seen at any time. An examination for plasmodia malariæ could not be made under the circumstances and the Widal test had not yet come into vogue. The continued temperature, not yielding to quinine, the slow, dicrotic pulse, the drowsy, comfortable condition of the patient and the absence of any obvious lesion responsible for the temperature leave no doubt of the diagnosis. How far this picture departed from the text-book type it is needless to remind you. I deem myself fortunate in having met this aberrant form thus early in my medical career, as it impressed on me the necessity of going outside of the types for diagnosis.

I had fallen into the most common error of diagnosis (in company, I grant you, not to be proud of) as the following statements will show. Thayer, in his "Lectures on Malarial Fevers," says: "It is a melancholy truth that a large body of medical men in this country have scarcely

[1] Read before the Riverside Practitioners' Society.

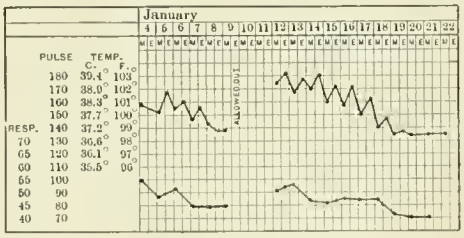
passed beyond the limits reached by Hippocrates in their clinical appreciation of the continued fevers." He shows from statistics that during six years preceding 1890 there were reported from New York city 2,060 deaths from malaria, 2,031 from typhoid; from Brooklyn 1,413 deaths from malaria, 1,002 from typhoid; from Baltimore 934 from malaria; 904 from typhoid, and shows that during this time in the Johns Hopkins Hospital there were forty-eight deaths from typhoid and only three from malaria. With these data, considering the mild type of malaria in the North, it is not difficult to appreciate the enormity of these errors in diagnosis.

The report of Dr. Victor C. Vaughan, a member of a board appointed by Surgeon-General Sternberg for the study of the cause and spread of typhoid among the troops during the war with Spain, affords interesting reading in this connection. The troops in the various camps were represented by medical men from widely-distributed localities and yet there was a striking unanimity in error. At Camp Alger they found most of the febrile cases diagnosed as malaria and yet hundreds of blood examinations which they instituted did not reveal one plasmodium. Their work among the numerous camps led them to the conclusion that "malaria was a very rare disease among those troops that remained in the United States." Among the twelve regiments of the first and third army corps there were 3,732 probable cases of typhoid, of which 1,584 were recognized by the army surgeons. In the early stages of these mild types a diagnosis can not be made off hand. Repeated examinations of the blood for the plasmodium and for the Widal reaction must be made to differentiate.

I was called in the summer of 1899 to see a physician who for ten days had had a mild type of fever which he himself considered malarial, but which was suspiciously resistant to quinine. When I saw him the morning temperature was 99.8° F., and the pulse 84. He had no rose spots and the spleen was not palpable. I carefully examined the blood for plasmodia, but without result. The diagnosis of malaria at first was fortified in his own mind by the fact that he came from New Jersey, though he was too shrewd a man to give much weight to the quondam Sherlock Holmes method of diagnosis of malaria from the character of the mud upon the patient's shoes. Time settled the diagnosis and he developed the signs of a mild typhoid which ran an uneventful course.

Another form of diagnosis that has come within my ken is typhomalaria. Some time ago I was called to a nearby city, to see a case in which this diagnosis had been made. The patient was a girl, fifteen years of age, who had returned two weeks before from Detroit with a fever which showed considerable excursion from morning to night. Her subjective symptoms were a chill five days before arriving home, fever, drowsiness and malaise. The diagnosis of malaria had been made and goodly quantities of quinine administered. In spite of this fact the temperature kept on the increase for ten days to two weeks and then began to abate a little. The patient was hungry and desired to sit up in bed; this she was allowed to do with the result that she had an intestinal hemorrhage. The next morning rose-colored spots were abundant and were noticed for the first time. The diagnosis was then changed to typhomalaria. I saw her on this day. It is needless to go into detail; I found a typical typhoid; spots, spleen, hemorrhage, temperature curve, all bespeaking the condition. No blood examination had been made.

A word about typhomalaria; if it mean anything, it means a mixed infection. How rare this mixed infection is can be appreciated by a perusal of Lyon's article in the Johns Hopkins Hospital Reports.[1] He was able to collect thirty cases which met the criteria demanded by scientific diagnosis. The significance of the term as usually employed is defined by a quotation from this article: "The term typhomalarial fever, as Woodward later pathetically remarked, has been used extensively by many physicians to denote any obscure febrile affection which offered diagnostic difficulty." Woodward introduced the term into the United States; hence the pathos. The difficulty in diagnosis in these light cases can scarcely be better illustrated than by the following: The patient, a man, twenty-eight years



of age, called me to attend him January 4, 1898, complaining of an attack of diarrhea which had lasted three days. He said he had frequently had such attacks and thought this one was brought on by partaking liberally of a late supper. The stools were very numerous, clay-colored, and contained some mucus, but no blood. His temperature was 100.8° F., and his pulse 100. In spite of the numerous stools and the fever which next day reached 101.8° F., he had but little discomfort. The physical examination was negative except that the sclera were a little icteric. Under the administration of intestinal antiseptics the number of stools decreased and the patient felt brighter. On the 9th, as the temperature and pulse were normal the patient was allowed to go to his office. Three days later, he sent for me again, reporting that he had felt better on the 10th, but that the next day the diarrhea and fever had recurred. His tempera-

[1] Irving Phillips Lyon. Coincident Typhoid and Malarial Infection, Johns Hopkins Hospital Reports, Vol. VIII., p. 263.

ture was 103.2° F., pulse 96. The course of the fever is shown by the chart. He was put to bed on a milk diet. The physical examination was still negative. He complained of nothing except drowsiness during the day and of restlessness at night; the next day percussion showing the spleen to be a little large, a specimen of blood was sent to the Board of Health for a Widal test. A negative report was rendered. The stools were now of the peasoup character.

On the 17th the edge of the spleen was palpable. The urine failed to show Ehrlich's diazo-reaction.

My attention had shortly before been attracted by an article by Hiss, in the *Journal of Experimental Medicine*, on "A Method of Isolating and Identifying the Bacillus Typhosus," and to him I sent a specimen of the patient's stools. The next day, the 18th, and apparently the nineteenth day of the attack, his temperature was again normal. On the 21st the report on the feces was returned, stating that the typhoid bacilli had been found. Another specimen of blood was immediately sent to the Board of Health and a positive Widal reaction was obtained. The unusual feature of this case was the subsidence of fever on the eighth day of the disease. The well-known fact of the late development of the agglutination test in some cases needs no further comment. By a peculiar coincidence, during this patient's illness a report appeared in the *New York Medical Journal*, by Brill, on "A Disease Resembling Typhoid Fever."[1] He cited seventeen cases running a short course, offering nearly all of the classical symptoms of typhoid but not presenting the Widal reaction, and differing in minor details; he could afford no satisfactory explanation of the etiology of these cases.

Proof seems to be accumulating that there is a disease which resembles typhoid clinically and in such a case bacilli have been cultivated from the blood which morphologically resemble Eberth's bacillus, but differ in some respects. The essential point is that such cases give a negative serum reaction. These cases are rare. The case cited, of course, did not belong to this category, but in its course bears some resemblance.

A mild attack of typhoid, though usually running to a successful issue, is by no means to be looked upon with unconcern. Because the patient is comfortable and the temperature is low, a haste to comply with the patient's wishes may prove disastrous, resulting, perhaps, in a hemorrhage, as in the case cited. Two of the worst cases I have met with have been in relapses from exceedingly mild initial attacks. The rule that a patient should be carefully restricted until the temperature has been for some time normal holds for light cases as well as for severe ones. Living by the thermometer, however, is irksome for patient and physician and one is tempted to second the wish I have heard old practitioners express, that all thermometers might be at the bottom of the sea.

These little recrudescences may be due to various causes, *e.g.*, a too liberal diet, constipation or nervousness. A starvation temperature is also to be remembered. A patient of mine, a young man, whose temperature had been normal some time, discovered on one occasion that the thermometer registered a degree above normal, and was canny enough to attribute it to the excessive heat of the day and forced all the family to take their temperatures. Every one of them showed an elevation of one-half to one and one-half degrees above normal and the same result was obtained from other healthy individuals that day. I remember, when on service at the New York Lying-in Hospital, that one hot day all but one of a dozen patients in a ward registered a temperature from one-half to one degree above normal, which subsided with the cool of the evening.

One is prone to allow a patient convalescing from a light typhoid to resume his occupation too early, presuming on the rapid gain made in convalescence. I made this error in one of my cases and saw the patient later forced to withdraw from his business for a much longer time than would have been necessary, probably, had a longer period for convalescence been insisted upon.

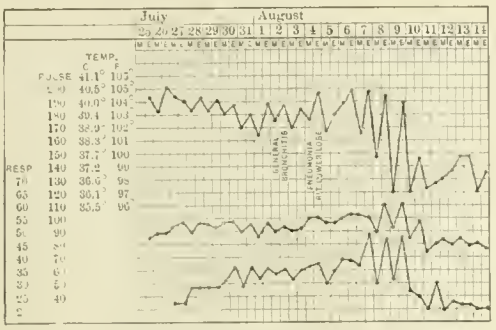
Amid the anxieties and perplexities of a serious case we are often neglectful of minor manifestations and are frequently surprised into harking back dimly to experiences of our own when the like is presented by others. We note the development of a functional murmur in a weakening heart, we determine the cardiac impulse and outline, study the condition of the arterial system, watch the various phases with the progress of the disease and then in our interest compare the notes on our previous cases, finding them, to our disgust, a Sahara; or, perchance, our attention is called to unusual rashes and we find upon our notes that in her relapse "M. W. developed a rash that itched and looked like urticaria" and look in vain for more regarding it; or remembering that another case showed a brilliant scarlatiniform eruption of extensive distribution, we find that no note at all has been made of it.

The respiratory tract in typhoid fever forms a chapter by itself. We expect some congestion of the upper air-passages in most cases of moderately severe typhoid, expressing itself by a slight cough or a mild degree of deafness. In many cases we have a bronchitis of varying intensity and far more rarely a pneumonia.

The case of the accompanying chart was one in which an exceptionally sharp bronchitis prevailed. Note the respiration curve during the first week or ten days. I feared a bronchopneumonia in this case, but was never able to localize any area of consolidation. This case was removed to New Bedford Hospital during a seri-

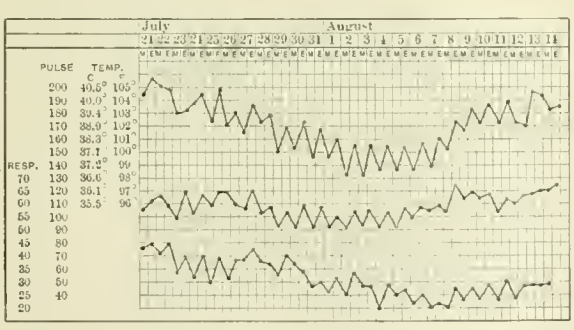
[1] N. E. Brill. A Study of Seventeen Cases of a Disease Clinically Resembling Typhoid Fever, but without a Widal Reaction, New York Medical Journal, Vol. 67, p. 77.

ous relapse which was followed by a second relapse with eventual recovery. The patient was forty years of age. In this case I got very gratifying results from the use of ice-bags in the



axillæ and groins as adjuvants to the sponge-baths to control the temperature.

Pneumonia may occur early in the disease and so dominate the picture that the typhoid is recognized only late or not at all; or it may occur later and, if at the height of the fever, produce so little change in the temperature curve as to be overlooked unless routine examinations of the chest be made. If it occur late, there is an exacerbation of the fever to give a hint of its presence. It is alwas a serious lesion. Pneumonia in typhoid fever may be lobar, lobular or of the so-called hypostatic variety and the organism present may be the micrococcus lanceolatus or Eberth's bacillus. As an example of a late pneumonia I quote the following:



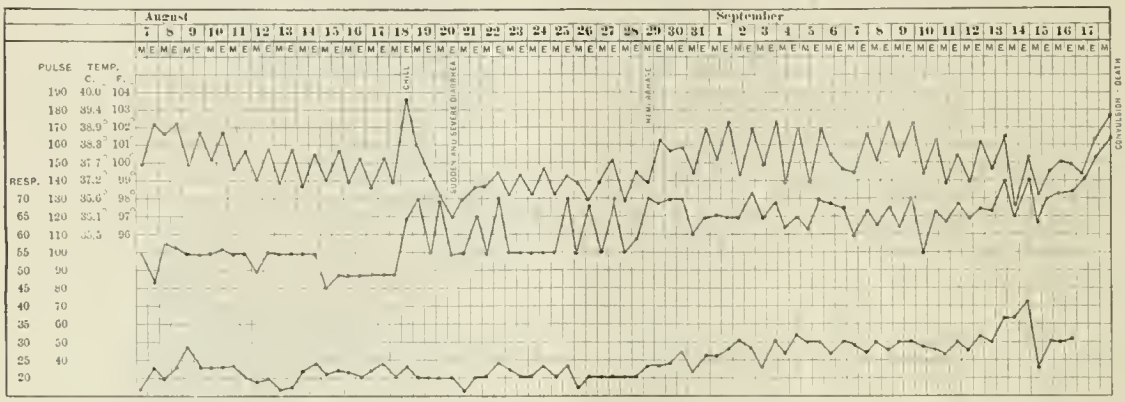
In July, 1898, there came under my care a lad of sixteen years with a well-developed typhoid. He was apparently in the second week of the attack and had a temperature of 104.2° F. and a pulse of 88. He was drowsy, had a little headache, was constipated and an examination revealed rose spots and an easily-palpable spleen. He had a rather severe type of fever, the nature of which you will see by consulting the chart. Five days later, on what was reckoned the fifteenth day of the disease, a note was made that the patient had a slight cough and a few râles were detected at the left base. On the eighteenth day sibilant and coarse râles of a general bronchitis were heard over both sides of the chest. The next day the signs were more marked and the breathing was a little asthmatic in character. On the morning of the twentieth day there was, in addition to the râles, restricted breathing over the lower right chest posteriorly, and in the evening over this area there were dulness, bronchial breathing, and subcrepitant râles. On the twenty-second day, in addition to these signs, the breathing became restricted over the left base. The respiratory rate was increasing during this time to 40 above. On the twenty-fourth day the temperature dropped from 104 to 99° F., went up the next day to 104° F. and dropped to 97° F. in the morning, only to repeat this change in the next twenty-four hours, after this crisis remaining normal with slight fluctuations. On the twenty-sixth day, the day of the final drop, the bronchial breathing could no longer be heard and from this time on resolution occurred, though all signs did not clear up for three or four weeks. The right lower lobe I considered to have been the site of a lobar pneumonia. The restricted breathing over the left was due, I think, to hypostatic congestion.

Crises do occur in typhoid fever, but according to Hare they are rare. This crisis I think due to a defervesence of the pneumonia, the febrile reaction due to the typhoid having abated during its continuance.

Now and then there comes to us a case of more than usual interest, replete with difficult problems and rare manifestations, finally leaving to us as a heritage the everlasting why? Such is the case that follows, which even at the risk of tiring you, I beg to be allowed to report somewhat in detail.

The patient was a woman sixty-one years of age, with a decided tendency to corpulency. She had always been remarkably free from ailment of any kind and was the picture of health at the time of the attack. At that age typhoid fever is not common, as you know, and the consensus of opinion among writers is that it is a grave disease, "the mortality increasing with the years after forty" (Hare); and yet the temperature curve in these cases is not high and is apt to be irregular. I first saw her on August 4, 1899. She said she had not been feeling well for two weeks, had a poor appetite, was constipated and had a headache each morning. Two days before and again on this day she had had a chilly feeling followed by some fever. Her temperature was 101.5° F. and her pulse 100. The physical examination was negative. Her bowels were moved freely and the next day as her condition showed no improvement she was sent to bed and put on a milk diet. Two days later her temperature reached 102.2° F., and then steadily decreased, as may be seen by the chart. Her illness promised to be a very comfortable one and the progress was favorable until the end of the second week (from the time she took to her bed), when, after a sudden chill, the temperature rose to 103.8° F. and the pulse to 120. The temperature subsided the next day and re-

mained almost normal for ten days, undergoing excursions of not more than one degree. I do not know what was the cause of this sudden rise. During this attack no spots were seen and it was impossible to make out splenic enlargement a change in the phase of the typhoid or a dysentery? I believe it was the latter. It came on simultaneously with a sudden outbreak of a number of cases in the town, was accompanied by a great deal of abdominal pain, traces of blood



on account of the thickness of the abdominal parietes.

Mild as this initial attack was as regards temperature and personal comfort, no doubt the chart has revealed to you one factor significant of low resistance, the pulse-rate, which had been persistently high.

Two days after this chill, August 20th, the weather suddenly became excessively warm and within twenty-four hours I was called to see ten or a dozen cases of diarrhea, some of them dysenteric in character, passing blood and mucus. These sudden epidemics, if I may so dignify them, coming on within a few hours, I have met again and again in my summer practice at the seashore; they appear usually with marked changes in the weather and are attributable in most cases to no indiscretion in food, drink or exposure. On this day, in common with other cases, the patient had a sudden and very severe diarrhea. The stools were flecked with blood and caused a great deal of abdominal pain. Tenderness was marked over the sigmoid flexure. A cathartic of castor oil was given and intestinal antiseptics and small doses of opium were employed with promising result. For five or six days the condition improved and then the stools became more numerous and very offensive. The tenderness over the sigmoid increased. On the 28th she had a fairly comfortable day, but at eleven o'clock the next morning had an intestinal hemorrhage of from a half pint to a pint. Ice was applied to the abdomen and morphine administered hypodermically.

From this time on you will note that the character of the chart changes. The temperature rose, the curve became very irregular and the pulse curve grew more ominous every day. The patient was suffering a relapse of the typhoid and a severe one. Hare says that relapses after mild initial attacks are more common than after severe ones. Was this attack of diarrhea simply in the movements and tenderness in the left iliac region which increased up to the time of the hemorrhage. The hemorrhage may have been due to a dysenteric ulcer or a typhoid ulcer, probably the latter, the process of ulceration being hastened by the colitis.

Those of you who have read the highly interesting and instructive Gloustonian lectures on The Typhoid Bacillus and Typhoid Fever by P. Horton-Smith[1] will recall his discussion of relapses in typhoid fever. Briefly he considers that auto-intoxication plays an important rôle and shows that the action of typhoid toxins is heightened in virulency in the presence of other toxins, even those of the normal inhabitants of the intestinal canal, *e. g.*, bacillus coli, and shows that in turn other organisms and especially the bacillus coli increase in number and virulency in the presence of the bacillus typhosus. Conditions which encourage the growth, then, of other germs in the intestinal canal, heighten the virulency of and reduce the resistance of the system to the typhoid toxin.

These truths seem to be exemplified in this case. Whatever the germs may be that are responsible for the simple dysentery we are accustomed to see, as in this case, whether the bacterium coli commune, the proteus vulgaris, the streptococcus or a staphylococcus, their presence and growth may explain this relapse and its very severe character.[2] During the first week of the relapse the stools became more infrequent and tympanites of a marked and persistent character intervened. The patient became more drowsy and grew weaker, the pulse running from 110 to 130. During the second week the condition was practically unchanged, except for a more marked apathy and the appearance of subsultus tendinum. In the middle of the third

[1] Lancet, Vol. I., 1900, p. 821.

[2] With reference to this, see recent article by Vedder and Duval on "The Etiology of Acute Dysentery in the United States," Journal of Experimental Medicine, Vol. 6, p. 181.

week the patient began to be delirious and the evacuations became involuntary. The febrile excursions were more marked and the pulse was weaker. At the end of the week the patient was fast failing, râles appeared in the chest, respiration became rapid and arhythmic and soon Cheyne-Stokes in character. On the last day of her illness the pulse went up to 166, the respiration to 44°, though râles in the chest were gone. In the morning it was noticed that the legs were stiff, and early in the afternoon the left hand began to twitch, followed by clonic spasm of the masseters and shortly after by a general convulsion. Two hours later another convulsion occurred, beginning with nystagmus, strabismus involvement of the facials, producing the risus sardonicus, never to be forgotten when once seen, and spreading to the whole body. This lasted twelve minutes in spite of the use of amyl nitrite, and of chloroform. Two hours later another convulsion ensued in which she died.

Convulsions in typhoid are not of common occurrence and yet nearly all the writers who have treated of the disease extensively mention them. In many of the cases meningitis is suspected and, indeed, true meningitis does exist, due to the streptococcus, to the pneumococcus or, in rare instances, to the bacillus typhosus; in other cases only a simple congestion of the meningeal vessels is present and several instances have been recorded in which the postmortem findings were absolutely negative. Thrombosis of the cerebral sinuses or arteries may cause local or general convulsions. As an autopsy was not secured in this case the cause of the convulsion can at best but be conjectural.

As regards treatment I have little to say. My own method is the one so largely adopted at present, consisting simply of keeping the patient on a milk diet and controlling temperature by baths and sponging. Theoretical considerations appeal strongly for intestinal antiseptics, but clinical evidence in their behalf arouses no enthusiasm, while what the Germans call the *Nebenwirkung* of the drugs always haunts one as possessed of unpleasant possibilities. Too rigid observance of milk diet, an observance which in some instances becomes slavish, is to be decried. I am sure I have seen unpleasant consequences in a case of my own by failing to appreciate the folly of continuing a food that the bowel clearly would not dispose of, simply because it was labeled milk.

To one procedure I desire to call your attention, if it is not already familiar to you, and that is the prophylactic use of urotropin. I remember the interest with which I read Mark Richardson's article in the *Journal of Experimental Medicine* (1899) "On the Value of Urotropin as a Urinary Antiseptic, with Especial Reference to Typhoid Fever," on account of the promise it held out. He had called attention the preceding year in the same journal to the fact that the urine of typhoid patients in 25 per cent. of the cases he had investigated showed the bacillus typhosus and that they could be found long after convalescence—week, months and even years. The statement requires no comment on the danger of dissemination it entails. He found that in every instance the use of urotropin caused disappearance of the germ in a short time. He advises its use for ten days at the end of the fever. His work has since been corroborated by other observers, notably by P. Horton-Smith. As no harm has been noticed in prolonged use of the drug, one can give five grains three times a day for three or four weeks, beginning as the temperature approaches normal.

400 West End Avenue.

ADRENAL SUBSTANCE IN THE INTESTINAL HEMORRHAGE OF TYPHOID FEVER.

BY WARREN COLEMAN, M. D.,
OF NEW YORK.

The local hemostatic action of adrenal substance on various mucous membranes is well known and needs no further comment. Adrenal substance exerts a similar hemostatic action when administered internally, locally on such portions of the mucous membrane of the alimentary tract as it may reach and also upon various bleeding areas while circulating in the blood. Reports of such action have appeared and are appearing in the literature from time to time; for example, adrenal substance has been used successfully in hematemesis from gastric ulcer and cirrhosis of the liver, in hemoptysis and hemorrhage from uterine fibroids; but, so far as I am aware, it has not been used in the intestinal hemorrhage of typhoid fever. During the past two years I have treated five such cases with adrenal substance. Four of the patients recovered, though in two of them the hemorrhage was very severe. The fifth patient died of toxemia and exhaustion several days later and not of hemorrhage, as was shown at the autopsy. While I am not prepared to say that recovery in the four cases was directly due to the action of adrenal substance, I feel that, in view of our utter helplessnesss when using the ordinarily recommended hemostatics in the intestinal hemorrhage of typhoid fever, I am justified in advocating the free administration of adrenal substance in these cases. Certainly no harm can be wrought by this treatment when ordinary care is taken, for even very large doses of adrenal substance may be administered without deleterious effects, as happened in one of my cases owing to an order which was misunderstood by the nurse.

A brief account of two of the cases will suffice to illustrate the action of adrenal substance in intestinal hemorrhage.

Case I.—Male, aged twenty-seven years. Very severe hemorrhage early in the evening of September 23d, the patient losing from three to four pints of blood. He was immediately given fifteen grains of adrenal and the dose was repeated every hour during the night. There were slight

hemorrhages—at least blood was passed in the stools—at one and two-hour intervals the same night. The patient's temperature was 103° F., and an ice-coil was kept on the abdomen. On the following day fifteen grains of adrenal were given three times a day, and the ice-coil was continued until September 26th; no further hemorrhages occurred after the first night.

Case II.—Female, aged forty-three years. Severe intestinal hemorrhage September 22d. Adrenal substance was immediately given, fifteen grains every two hours during the day and every four hours during the night. The next day the stools were tinged with blood, and adrenal was given in fifteen-grain doses three times a day. On the third day only faint streaks of blood were present in the stools, and treatment was continued in the same manner. No further hemorrhage occurred.

In view of the success which has attended the administration of adrenal substance in these five cases, my present plan, on assuming charge of a case of typhoid fever, is to order five-grain powders to be kept in the sick-room and to give instructions to the nurse to administer one powder on the first sign of blood in the stools, repeating the dose every hour until I can be reached.

When the patient is conscious the powder may be placed on the tongue, chewed a little and swallowed with a little water. In a profound typhoid state, the powder may be given in suspension in water or in a little milk. Occasionally, the first dose produces slight nausea; this did not occur in any of my cases, however. When nausea follows the administration by mouth, ten grains of the powder may be given by rectum, if the diarrhea is not too frequent, and the dose repeated every hour or two. If neither the stomach nor rectum will tolerate the drug, Schaffer's suggestion of an intravenous injection may be tried, but not more than two or three grains should be so given.

I have also had a case of purpura hæmorrhagica with severe hemorrhages from the nose, gums and bowels, and extensive cutaneous extravasations, in which adrenal substance was successfully given. The extent and the severity of the hemorrhages will be appreciated when I say that the patient was compelled to sit up in bed and hold a basin to catch the blood that was continually flowing from the nose and mouth. On entrance to the hospital, he was immediately put upon fifteen grains each of adrenal substance and calcium chloride, three times a day. This treatment was continued for the six following days with gradual subsidence of the hemorrhages and their complete cessation on the fifth day. Of course, in this case it is impossible to say how much of the benefit resulted from the adrenal and how much from the calcium chloride.

To illustrate the local action of adrenal substance in the stomach a recent letter of Soltau Fenwick[1] to the *British Medical Journal* may be quoted. He writes that in severe hematemesis he has abandoned all other remedies in favor of adrenal substance and he believes that he has saved the lives of at least five patients in the last eighteen months by this treatment. His plan is to give ten ounces of a freshly-prepared decoction of adrenal powder, containing two grains to the ounce, as soon as possible after the beginning of the hemorrhage, and to repeat the dose in two hours. In two cases in which melena was the only symptom he gave three doses in four hours. He has obtained the best results in comparatively recent ulcers near the cardiac end of the stomach. In chronic ulcers of the pylorus, when the eroded vessel was of large size and embedded in firm connective tissue, he found the adrenal to be of little use. He has also used with benefit enemata of adrenal substance in inoperable cases of cancer of the rectum for the control of hemorrhage.

[1] Brit. Med. Jour., 1901, Vol. II, p. 1596.

PATHOLOGY OF TYPHOID FEVER.[1]

BY R. ALEXANDER BATE, A.B., M.D.,
OF LOUISVILLE, KY.
ADJUNCT PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE AND LECTURER ON HYGIENE, HOSPITAL COLLEGE OF MEDICINE, LOUISVILLE, KY.

THE bacillus typhosus within the system is the cause of typhoid fever. Eberth, Klebes, Gaffky, Koch, Arthaud, Pfeiffer, Friedlander, and many others have identified this bacillus. It is about one-third the diameter of a red blood-corpuscle in length, one-third as thick, and it is rounded at the extremities. A shining rounded body may sometimes be observed at either end or in the center, which may be either a spore or a protoplasmic degeneration. The bacillus occurs singly or many bacilli may be joined together, end to end. It possesses vibratile cilia which permit its characteristic motility. Its general appearance differs somewhat according to the culture media employed.

The life of the bacillus is uncertain. Active bacilli have been found in the human fifteen months after convalescence. They seem to continue to live indefinitely in filth, in privy vaults, and in moist earth. They multiply in water and maintain their vitality in ice. Sunlight destroys them, however, in a few hours. Electrolysis also destroys them. Zeit (*Jour. of Amer. Med. Assoc.*, Nov. 30, 1901) reports the death of typhoid bacilli in bouillon cultures after exposure to a continuous current of one hundred milliamperes for seventy-five minutes at a temperature of 102° F. The most frequent media through which they are conveyed to man are water, milk, sewage contamination, dust and shellfish, especially oysters. Flies also purvey the infection.

It has often been observed that the source of infection in milk was usually through the water employed to wash the cans or to dilute the milk, and that, if the organisms were respired, some were carried into the alimentary canal by food or drink. Some claim that the bacilli

[1] Read before the Louisville Pathological Society, Dec. 16, 1901.

must enter the system through the intestinal glands or by inoculation, never by the respiratory tract; but this is unproved. Any age may be affected by typhoid fever, the fetus *in utero* or the nonagenarian. Many observers have identified bacilli in the heart and spleen of the fetus and in the placenta. Hammernyk reported the case of a patient ninety years of age. The adolescent male, however, is most frequently affected.

Exhaustion of any kind predisposes to an attack, but influenza has been observed frequently to precede the disease. Pregnancy renders no immunity and the fetus is usually so affected that abortion, miscarriage or premature labor occurs in the larger proportion of cases. In this country the disease is most frequent in the fall of the year, the poison having been concentrated by the drougths of the summer; the disease is correspondingly less frequent during the spring, owing to the dilution of the poison by early rains. No race is immune, but temporary immunity has been observed in various individuals, and a second attack rarely occurs in the same individual.

Although the bacillus is in an active state when discharged in the excreta, it is generally believed that a period of extra-corporeal development occurs before the organism again infects the human. The period existing between the time of introduction into the system of the poison and the manifestation of symptoms is usually from ten to twenty days, in rare instances symptoms occur as early as two days. The bacilli have been found in the blood, in the lymphatics and in the tissues generally; especially in the blood from the rose spots, the intestinal glands, the spleen and the liver. They have been found in the gall-bladder, in the placenta, in the fetus and in abscesses. One case of an ovarian cyst, removed three years after an attack, is reported, in which active bacilli were present. They are excreted in the feces, in the urine and in the sputum.

The bacilli are the direct cause of the disease, but they liberate toxin in the system—the typhotoxicon of Brieger, the toxalbumin of Fraenkel and the ptomain of Vaughan—which is responsible for the fever, the vomiting and the purging that occur.

This toxemia produces changes in the blood. The fibrin is diminished, the leucocytes are increased and typhoid antibodies or enzymes are present in the blood. Loomis states the severity of an attack to be in direct proportion to the diminution of the fibrin of the blood and to the leucocytosis after the characteristic symptoms of the disease are manifest.

The enzymes in the blood digest the outer coat of the bacillus and thus cause the clumping and agglutination of the bacilli described by Widal. This altered state of the blood, according to Loomis, causes changes of the nature of parenchymatous degeneration in all the structures of the body. The spleen is the earliest to manifest these changes and is affected in ninety-eight per cent. of the cases; it becomes enlarged, soft and pigmented. The liver likewise becomes soft and flabby. Gould says that typhoid infection of the gall-bladder is probably always present during the course of the disease. Keen collected thirty-four cases in which empyema, cholecystitis, or ulceration were present without gall-stones; therefore these conditions were entirely dependent upon typhoid infection. Von Dungern reports a case of abscess about the gall-bladder which contained active typhoid bacilli fourteen and a half years after the disease. The kidneys undergo degeneration and may be the seat of infarctions. The urine becomes twice as toxic as the normal urine and contains certain aromatic bodies which give rise to the diazo-reaction of Ehrlich. Perinephritic abscesses are not uncommon. The heart, next to the spleen, is the seat of the most marked parenchymatous changes; it becomes soft and flabby and may be pigmented, or a condition similar to amyloid degeneration may occur. Thrombi are sometimes found within its chambers. The lungs are characterized by changes peculiar to typhoid fever, undergoing a "splenization" which is neither a true pneumonia nor yet static in type. Bronchial inflammation is so common as to have caused the name of bronchial typhus to be suggested. The larynx and Eustachian tubes may become ulcerated. The brain and nervous system are always affected. Cases of typhoid fever have been reported without the rose spots, cases without the intestinal lesions; but no case without the nervous phenomena has ever been observed. The walls of the stomach undergo degeneration and its glandular structures are so affected as to cease to secrete the gastric juices. Buchan (*Phil. Med. Jour.*, July 6, 1901) and Barjon and Lesieur (*Jour. Amer. Med. Asssoc.*, July 20, 1901) have reported cases of arthrotyphoid, or cases in which marked arthritis occurred. The muscles in general undergo two kinds of degeneration—a granular or fatty degeneration and a waxy or vitreous degeneration. The salivary glands undergo hyperplasia and pigmentation. The skin is the seat of a characteristic lenticular eruption, beginning between the sixth and and twelfth days. These so-called rose-colored spots vary in size from a point to a line and a half; they may coalesce and are most abundant over the abdomen.

These changes are regarded by some to be as constant a phenomenon in typhoid fever as is the rash in scarlet fever.

The subcutaneous cellular tissue may become the seat of ulceration or furunculosis. The mesenteric glands undergo changes similar to those of the intestinal glands. It was formerly said that, if there were a pathognomonic lesion in medicine, it would be the intestional lesion of typhoid fever. Typhoid fever, however, has been observed by the medical world at large for about fifty years only, and even in the last year additions have been made to its pathology.

In this paper it is especially desired to empha-

size the probable pathologic conditions in those cases of typhoid fever which are apparently shortened in duration. According to Loomis there are three varieties of changes that occur in the intestinal glands. The first and most common type is that in which the mucous membrane of the ileum, the Peyerian patches and the follicles near the ileocecal valve undergo a catarrhal inflammation during the first week of the disease. During the second week the inflammation of the mucous membrane subsides, increasing the hyperplasia of the glands, which progresses to ulceration, to be followed by sloughing or necrosis in the third week and cicatrization or repair in the fourth week. Intestinal perforation and hemorrhage may occur with these changes.

In the second or next most common process the termination is by the tissue between the follicles remaining infiltrated and elevated while their contents are absorbed, or individual follicles of the agminated glands rupture and discharge their contents into the intestine, leaving depressions which give the glands a reticulated appearance.

The third variety of pathological change in the intestinal glands is perhaps the least frequently exposed to the eye of the observer. However, if all the glands affected in all cases of typhoid fever could be counted and their entire course observed, it is my personal belief that this process would be found to be by far the most common of the three varieties of changes. Loomis best describes these changes: "During the first week there occurs a catarrhal inflammation of the intestinal mucous membrane, most marked about the Peyerian patches, with a medullary infiltration of these and the salivary glands. The mucous membrane becomes hyperemic, the glands become enlarged and elevated, the co-called shaven-beard appearance. These changes begin within forty-eight hours after the onset of the disease, but are not fully developed until the end of the first week. During the second week the hyperemia disappears from the mucous membrane, and, instead of hyperplasia occurring in the follicles, instead of the slough or ulcer forming, instead of the follicles remaining infiltrated and elevated and the glands rupturing, the new elements in these ductless glands become disintegrated and undergo absorption and in this way gradually undergo resolution." Thus by the end of the second week, without ulceration, the process is complete.

This is the classical pathological procedure in the mesenteric glands. This is the change that occurs most frequently in the typhoid of children, in whom the duration of the disease is never classical, but practically always shorter than in the adult. Most probably this is the process that occurred in the cases alluded to by Gould (*Phil. Med. Jour.*, March 3, 1900), who says that, while the intestinal tract exhibits the lesion of the morbid process in the vast preponderance of cases, it has now been definitely established that the intestines may be uninvolved. The disease may appear in the form of a true general infection or septicemia; or be localized in one or another or several viscera, as the spleen, the lungs or pleura, the cerebral meninges, the kidneys, etc. This absorption, without ulceration, is probably the classical process in relapses in which the fever frequently ends almost by crisis on the fourteenth day of the relapse. This is believed to be the change that occurs in by far the greater proportion of glands involved when the fever ends in the third week instead of in the fourth week, which latter has been regarded as classical. This is believed to be the change that occurs in a large number of cases observed by almost every practitioner, and in similar cases recorded by Loomis, Pepper, Osler and many others, in which the disease has lasted only two weeks; many of these cases had no medical treatment, and are referred to in textbooks as abortive and ambulatory typhoid. Resolution by absorption and not ulceration is unquestionably the process that took place in the cases reported by E. Fraenkel, A. Lambert, Henshaw, Brennan, Rumpf, Von Jaksch, Kraur, Walger and others, in which the disease was limited to less than fourteen days' duration by means of serum treatment. These reporters alone observed this limitation in more than a hundred cases.

Many cases are now on record in which autopsies have shown no intestinal ulceration, yet bacilli were obtained from the spleen and other structures. Ophuls (American Year-Book of Medicine and Surgery, 1901) describes a case of typhoid infection without intestinal lesions which occurred in a man of twenty-four who was admitted to the hospital in a semi-conscious condition. The diazo and Widal reactions were positive. The patient died a week later. The necropsy showed enlargement and softening of the spleen and lymph-glands, necrosis in the liver and multiple hemorrhages in the mucous membranes of the genito-urinary tract; bacteriological examination showed in the spleen large numbers of bacilli which had the characteristics of typhoid bacilli. Ophuls believes that in a certain number of these cases, which are apparently without intestinal lesions, infection has taken place in the usual way, through the intestinal mucous membrane, but that there has been no ulceration of Peyerian patches and the swelling has disappeared. McPhedram (*loc. cit.*) describes another case in which typhoid bacilli were found, but there was no intestinal ulceration; this patient died forty days after admission into the hospital.

An editorial in the *Journal of the American Medical Association*, July 30, 1901, entitled "Abenteric Typhoid Fever" says in substance that it has been properly pointed out that the lesions of typhoid fever are by no means confined to the intestinal tract, which may, and in fact occasionally does, escape involvement entirely. The article further cites the case of arthro-

typhoid of Barjon and Lesieur (previously referred to) in which the post-mortem showed no ulceration of the bowel.

Wm. A. Dickey (*Therapeutic Monthly*, 1901), considering the question of intestinal ulceration in all cases of typhoid, says, "This position can no longer be maintained," and refers to the paper of Vallaird, of Paris, read in 1890, in which a case was presented in which no intestinal ulceration occurred. Banti and Adnot each have reported cases. Osler has reported a case of typhoid in a boy, in which there was no disturbance of Peyer's patches. Flexner and Harris (of Johns Hopkins) reported a case in a man sixty-eight years old in which there was no intestinal ulceration. Dickey further says, "Numerous other cases are reported, so that we can no longer look upon the disease as one affecting the alimentary canal only, but rather one of a general character, a modified septicemia." So many cases are now on record that the impartial investigator can no longer doubt the frequent occurrence of genuine typhoid fever without intestinal ulceration. The action of the typhoid antibodies and other pathological conditions are not only still obscure, but can be studied only by the few.

At present it has been observed (American Year-Book of Medicine and Surgery, 1901) that (1) a single intraperitoneal injection of a typhoid culture into a guinea-pig results in the formation of antibodies; (2) the antityphoid power appears in the serum at about the fourth or fifth day; it increases until it reaches the maximum about the eleventh or twelfth day, when it diminishes but is still present a month after the injection; (3) the antityphoid power is small in the liver, the kidneys, the suprarenal bodies and the omentum. The value of the antityphoid power of the peritoneal exudate sometimes approaches that of the serum, but never surpasses it; (4) the bone-marrow and spleen are frequently more active than the serum; (5) the lymphatics and the blood may each be concerned in the formation of these antibodies; (6) the antityphoid action of these bodies has been positively demonstrated; (7) there may be an agglutinating principle separate and distinct from these antibodies.

It is only in recent times that any attempt has been made to separate these constituents of the blood. But certainly the antityphoid strength of a serum, very frequently corresponds with the power of its agglutinating action. The tendency of modern pathologists is to the opinion that true typhoid toxemia is limited in many instances to fourteen days, and that the manifestations after that time are usually dependent upon intestinal ulceration.

Therefore, since pathology has shown that no intestinal ulceration is essential to typhoid fever, and since true typhoid toxemia is often limited to fourteen days, and as the action of the typhoid antibodies and enzymes becomes better understood, it seems not unreasonable that therapy may soon claim to so modify the course of typhoid fever as to limit its duration in the great majority of cases to fourteen instead of the too classical twenty-eight days.

Second and Burnett Streets.

MEDICAL PROGRESS.

SURGERY.

Surgery of the Posterior Fossa.—While results from work on the posterior fossa and its contents have not been productive of most brilliant results, still life has been prolonged and made bearable and in a number of cases saved. The opportunity has been afforded to report several such cases to C. F. Barber (Brooklyn Med. Jour., Mch., 1902). In operating, he prefers opening the skull in the posterior fossa, as the various parts are more readily exposed, and drainage is more efficiently accomplished. In the first case pressure symptoms were marked and a cerebellar neoplasm was thought of. On opening the cranial cavity through the posterior fossa, a goodly quantity of fluid escaped and the pia seemed to be the site of a tuberculous inflammation. The wound was partially closed and silkwormgut drainage inserted. The fluid escaped for several days and symptoms disappeared entirely; recovery was perfect. In another case marked by attacks of tonic and clonic contractions of the extremities, loss of sense of direction, strabismus, headaches, areas of anesthesia, a diagnosis of cerebellar tumor, solid or cystic, was made. The operation was instituted in the same way and on lifting up the cerebellum a cyst was ruptured. The wound was closed, with drainage and in three days consciousness returned. Other symptoms were ameliorated, but in three weeks the patient died. The autopsy showed a cyst in the other hemisphere which had not been discovered. The author draws attention to the advantage of drainage in the most inferior point of the cranium as against puncture through the fontanelles and direct drainage of the lateral ventricles.

Gastrojejunostomy.—An interesting case in which this operation was done and which came to autopsy six years later is reported by A. H. Cordier (Jour. Amer. Med. Assoc., Mch. 1, 1902). The reason for the operation was the presence of a pyloric stenosis due probably to contraction from the healing of a non-malignant ulcer. The stomach was found very much dilated, with the pylorus low down, and the anastomosis was made with a Murphy button at a point in the anterior wall about four inches from the pylorus. A portion of jejunum about eighteen inches below the pylorus was selected as the site of application. The patient made an excellent recovery and had no further symptoms referable to his previous condition. Six and a half years later he died as the result of an acute pneumonia. On autopsy a complete obstruction of the pylorus was found; the stomach had regained its former size, with the musculosa healthy and well developed, while the unused duodenum and jejunum were atrophied. The Murphy button instead of being passed *per rectum* had dropped back into the stomach and remained there until the time of death without causing any symptoms. As this accident has been urged as an objection against the use of the button, mention of such a case causes it to lose some of its force, and the author believes that the great advantages to be gained certainly outweigh this doubtful source of danger.

Gastric Ulcer and Appendicitis.—Appendicitis is a difficult disease to diagnose when the symptoms are

at all obscure. Among the lesions which may resemble it is perforated ulcer of the stomach. C. A. B. HORSFORD (Lancet, Feb. 15, 1902) reports the case of a patient, thirty-two years of age, married. Five days previously, before breakfast, she had an attack of pain in the abdomen most marked in the right hypochondrium. Vomiting persisted at intervals throughout the day; there were jaundice, tenderness over the gall-bladder, flaccidity of the abdomen without distention, normal temperature, and no signs of collapse. For two years she had suffered from indigestion with occasional vomiting, but never hematemesis. About a week after she was admitted to the hospital, the temperature rose to 100° F., and two days later another severe attack of pain occurred; the right leg was drawn up, and tenderness at McBurney's point and slight bulging in the right iliac fossa were marked. Bile-stained vomiting followed by stercoraceous vomiting appeared in the evening. The temperature was then 100° F. and the pulse 95. Nothing definite was made out through the vagina. A diagnosis of appendicitis was made, but operation was not considered necessary. She soon became decidedly worse. The pulse and temperature remained about the same but the abdomen had become generally distended, especially in the hypogastrium and in the right iliac region. Liver dulness was present and there was dulness over the lower part of the abdomen. By the vagina a tumor mass was now made out, which was confirmed by the rectum, and a large amount of fluid was felt in the pelvis. The patient suddenly grew worse and died before operation was undertaken. At the autopsy it was found that an ulcer of the stomach had perforated and that an abscess had formed between the coils of the small intestine in the right iliac fossa, extending downward into the pelvis and upward along the ascending colon. This case is rare in its great similarity to appendicitis and therefore deserves notice.

Operative Interference in Spinal Fracture.—Spinal operation has proved comparatively free from the drawbacks attending intracranial surgery. This fact, together with the serious, painful and usually fatal nature of the lesion under consideration, renders the question pertinent whether it is not wise to operate early in the hope of relieving the pain and improving the course of the average case. The conclusions of G. L. WALTON (Boston Med. & Surg. Jour., Mch. 6, 1902) are as follows: (1) There are no symptoms which establish (otherwise than through their persistence) irremediable crush of the cord. (2) While total relaxed paralysis, anesthesia of abrupt demarcation, total loss of reflexes, retention, priapism and tympanites, if persistent, point to complete and incurable transverse lesion, the onset of such symptoms does not preclude a certain degree of restoration of function. (3) The prognosis without operation is grave. (4) While the results of operation are not brilliant, they are sufficiently encouraging to warrant one in making the practice more general. (5) In most cases it will be wise to operate within a few days of the injury; but a delay of some hours is advisable, partly on account of shock and partly to eliminate the diagnosis of simple distortion. (6) There is no infallible guide as to the extent of the lesion. The operation, at the worst, does not materially endanger life nor affect unfavorably the course of the case, and may, at least, reveal the lesion and lessen the pain; it may sometimes save a patient from death or invalidism of the most distressing character. Instead of selecting the occasional case for operation, one should rather select the occasional case in which it is contraindicated (the patient with great displacement of the vertebræ, the patient with high and rising temperature, the patient plainly moribund, the patient still under profound shock). (7) The dura should be opened freely; it need not be sutured; drainage is not necessary.

Adrenalin in Local Anesthesia.—The addition of some active local hemostatic to the solutions in general use for the production of local anesthesia in operations is a plan which must strike every surgeon as at least suggestive. The experiment has recently been made and with considerable success, by C. A. ELSBERG (Amer. Med., March 1, 1902). Experimenting with adrenalin chloride, as supplied in the market, he finds that its addition in the proportion of from 1 to 5,000 to 1 to 20,000 solutions has a distinct value in minor operative work in that it almost completely abolishes oozing from the wound. Contrary to his expectations, there was no secondary bleeding or oozing, as has so often been described after the use of this drug. The pain after the operation was less than when cocaine or eucaine alone had been used. There have been no ill-effects; unfortunately, however, the experiment has not yet been made in larger operations, such as herniotomies, so that judgment as to its general applicability must still be held in suspense.

Pulsate et Aperitur Vobis.—In the history of a healthy-looking yeoman, about fifty years of age, as reported by JOHN DAVIES (Lancet, Feb. 22, 1902), one finds a record of tapping which it will be hard to equal. From 1896 to 1900 he was tapped one hundred and fifty times. The total quantity of fluid removed was over two hundred and fifty gallons. In October, 1900, he died of cardiac failure.

Burns from Celluloid.—Evidently some active legislation should be directed toward regulating the combustion point of toilet articles made from this very inflammable material, A. OGSTON (Lancet, Feb. 22, 1902), having had several serious cases of burns in patients who, wearing combs, etc., of imitation shell, had suffered fearful injury from their apparently spontaneous combustion, and wishing to establish some sort of intelligent standpoint from which to attack the nefarious manufacturers, conducted a series of experiments to determine if possible the etiology of these accidents. Control experiments were conducted by Professor Japp at the Chemical Laboratory of the University of Aberdeen. The conclusions of these experiments were as follows: (1) Celluloid artices of uncertain composition and dangerously explosive are everywhere sold and are in constant use; the conditions under which they may ignite in varying circumstances cannot be fully determined from experiments made in a physical laboratory. (2) Badly manufactured celluloid ignites at variable temperatures, which are so low as to make it unsafe for personal wear. (3) Restrictions should be imposed upon all articles which do not sustain without ignition a temperature equal to that sustained by well manufactured celluloid. (4) All celluloid articles for personal wear should have the words "ignitable" stamped upon them. (5) It is said that celluloid can be made incombustible by the addition of some chemical. If this be true, such addition should be made compulsory by legislative action.

Cleft Palate.—Because of the very vague proof afforded dogmatic statements by Treeves and others on the surgery of this malformation, the general trend of which teaches that no child, except under the most exceptional circumstances, should be operated on before the age of three years, W. ARBUTHNOT LANE (Lancet, Feb. 22, 1902) in a long and graphically illustrated article discusses the "pros and cons" of such limitations. Among others, he asks and answers very definitely the following pertinent questions: What is the best age for operation? What is the best method of operating? How and when can any complication, such

as harelip, be met to the greatest advantage? While there is perhaps nothing startlingly original about the details of his method of operation, save that it is clear and introduces several modified instruments which are necessary, because of the tender age of the patients, the age limit is, indeed, an innovation. He says that after operating on a very large number of cases the best results come from intervention during the fourth or fifth week. The only and sole contraindication possible is the depression arising from bad or insufficient feeding. The advantages of early operation are as follows: (1) The child bears the operation well; (2) but very slight subsequent discomfort is felt and the child will take food with satisfaction within an hour or two of the operation; (3) the amount of hemorrhage is very slight and it is easily controlled. The most important variation which one needs from the ordinary is a mouth gag with serrate edges, since these infants have no teeth to hold the gag in place, and, again, the average instrument has an unnecessarily powerful spring. In the presence of a complicating harelip, contrary to universal custom he leaves the lip untouched until the palate is repaired. All sutures should be passed from within out through the lip (the old harelip pins being discarded); these efficiently check hemorrhage and never can cause a scar.

Internal Derangement of the Knee-joint.—It may seem like a reversion to go back to Hey's old name, but J. M. Cotterill (Lancet, Feb. 22, 1902) gives very considerable proof that the more modern term is very often a very misleading and erroneous name for a condition which can rarely be diagnosed with exactness save by exploration. Most writers are agreed as to the etiology. Probably in most cases it is an internal twist of the femur on the tibia. Stepping from rapidly-moving cars is a frequent cause. Football is, of course, the great factor in causing this condition. Miners and others who habitually kneel at their work are frequent sufferers from "derangement" of the knee. Rarely, if ever, is the lesion brought about by direct trauma to the cartilage. The pathology is more or less in dispute. Many good writers assert that the external cartilage is invariably the one to suffer. Equally good authorities—Cotterill among them—declare that in 90 per cent. of the cases it is the internal which goes wrong. In a series of most instructive photographs he shows that a very large proportion of the internal cartilages are split transversely, the coronary ligaments remaining intact. This is what leads him to feel that the term "dislocation" is incorrect. To the symptoms and diagnosis he adds some differential points. If seen before effusion takes place the knee can always be flexed fully and painlessly; full extension always gives pain. This is a diagnostic point between cartilaginous damage and injury to the general joint tissues. It is also of value in distinguishing between an injured cartilage and a "loose body," this being characterized by pain now on flexion; now on extension. Furthermore, in this condition one gets the characteristic "locking" which is not seen in injured cartilage. As to the treatment there is a general consensus of opinion that flexion, rotation away from the injury and extension will habitually remove the offending tissue and that after its removal it frequently happens that immobilization for three or more weeks will enable the freshly-torn surfaces to unite. In the rare cases of marginal protrusion of the meniscus a pad is of possible value; in the commoner central displacements it is not so. The indications for operation are simple. A patient under mid-life, who wishes to be active, who has neither rheumatism nor tuberculosis and whose cartilage is frequently giving him trouble, should certainly be operated on. In incising the joint, Cotterill enters by the usual skin-flap, but cuts the capsule over the femoral rather than over the tibial surface, saying that otherwise it is not easy to determine how much the coronary ligamentous injury may have been traumatic and how much due to the operator's knife. Having exposed the cartilage it is dealt with as follows: (1) If wholly or to a greater part separated, excise it. (2) If separated from its anterior insertion into the tibia and curled into the joint, cut off the anterior portion as far back as the internal lateral ligament. (3) If much torn or frayed in front, do likewise. (4) If there be a torn tag or strip of the free edge of the meniscus projecting into the joint while the main part is in place, cut off the tag or strip and leave the uninjured part. (5) Under no circumstances is it advisable to stitch into place the cartilage or part of it, save occasionally when the injury is very recent. Removal of the cartilage is such a satisfactory proceeding that in suitable cases there seems no argument against excision. Nothing should be allowed to enter the joint; asepsis must be beyond all question. In two weeks the splint may be removed and the patient encouraged to move the joint a little in bed. Crutches may be allowed after three weeks. Violent exercise must not be thought of till after the fifth month.

Surgical Treatment of Quadriceps Paralysis.—A moderate number of cases of muscular paralysis, incurable by other means, have been benefited or cured by the surgical substitution of neighboring healthy muscles for those diseased. Another contribution to this subject is made by F. Krause (Deut. med Woch., Feb. 13, 1902) in which he describes a quadriceps paralysis in a boy of fifteen following anterior poliomyelitis. In addition to entire atrophy of the quadriceps, there was partial atrophy of the sartorius, much diminished contractility of the adductors, the semimembranosus and semitendinosus. The biceps was in good functional condition. In the leg, the flexors and peronei were least disturbed, but the calf muscles, tibialis anticus and extensor hallucis were almost entirely functionless. This condition was accompanied by a pronounced atrophy of the femur, tibia, and patella. Owing to the action of the flexors and the paralysis of the extensors, the leg was flexed on the thigh at an angle of 110° and with great effort could be brought to 145°. The weight of the body could not be sustained. The operative problem resolved itself into securing a stiff joint by an arthrodectomy or substituting the functionating flexors for the quadiceps. The latter effect could be gained by using the flexors on the posterior aspect of the thighs (biceps, semimembranosus and semitendinosus) when transposed, as extensors, and leaving the gastrocnemius and popliteus as flexors of the knee. Even if the latter failed to functionate, the weight of the leg itself would passively carry out the motions. The operation was briefly as follows: After appropriate incision the biceps was isolated and severed at its insertion into the tibia. Exposure of the quadriceps showed it to be entirely atrophied. An opening was then made in the vastus externus close to the periosteum at a level corresponding to the point where the biceps is free from the bone, and the biceps itself is pushed through. The gracilis, semimembranosus and semitendinosus were likewise isolated, then cut off at their insertions, and pushed through an opening in the vastus internus. The sartorius was also finally separated. As the common extensor tendon was too much atrophied to permit suturing, the muscles noted were attached directly to the patella. It was hoped that the weakened ligamentum patellæ would develop through use. Catgut was used throughout and the wound closed without drainage. An extension apparatus was applied to overcome the contraction due to

capsular ligaments and recovery was uneventful. In about seven months walking without assistance was readily accomplished. Movement of extension could be fully carried out and a slight degree of active flexion was possible. Three years after the operation the latter was possible to the extent of about 30° by the action of the gastrocnemius. All the muscles and the patella showed remarkable increase in development. In conclusion the author calls attention to the fact that no consciousness of the change of the musculature and its action was evident to the patient.

Death from Chloroform.—It has usually been considered that this anesthetic caused death by a paralysis of the ganglia in the walls of the heart, owing to the fact that without a sufficient dilution with air it passed rapidly from the lungs to the heart. This explanation will not account, however, for those cases in which chloroform is administered by drops or for those in which paralysis of the heart does not take place until long after the beginning of narcosis. Whether other factors may not be accessory to this is considered in an article by L. LAQUEUR (Deut. med Woch., Feb. 13, 1902) which was inspired by a fatal accident of this nature in his own practice. Autopsy in this case, that of a boy of fourteen, showed a persistent hyperplastic thymus gland, hypertrophy of the lingual tonsil, and marked enlargement of the spleen. As these phenomena have been observed in numerous instances by other observers, the author believes that their presence in children may be taken as a safe contraindication to chloroform administration. As persistence or hypertrophy of the thymus is often difficult to determine by percussion—for enlarged mediastinal glands may give rise to the same note—the presence of the hypertrophied lingual tonsil may be taken as a certain indication of the presence of the former. In addition any hypertrophy of the other lymphatic structures of the oropharynx should be noted. Such examination should always be made before chloroform anesthesia.

Deformities Resulting from Fractures.—The treatment of fractures, and of deformities arising from fractures, has recently been conceived in a more liberal spirit than heretofore. This has resulted from three chief causes, namely, (1) the freedom and enterprise conferred on surgery by antiseptic methods; (2) the proved value of early muscular movements and massage; (3) the Roentgen rays. In discussing the chief factors that singly or in combination form the substratum for pathological conditions, J. J. CLARKE (Med. Press & Circular, Feb. 26, 1902) gathers them under the following heads: (1) Psychical impression. Just as in minor wounds one naturally protects and guards the extremities without just reason or cause, after major injuries patients are apt to continue to nurse their disability, even though the lesion may have vanished. (2) Fibrous adhesions. These are the result of the organization of blood-clots either among muscle or within a joint in the neighborhood of a fracture; they constitute the primary indications for early massage and early passive movements. Massage helps by the relief of pain and spasm. Bivalve splints are of the utmost importance to enable the introduction of such treatment. (3) Muscular contractures. These are due to prolonged maintenance of incorrect postures. Their cure is often effected by massage and passive movements, but in some cases tenotomy may be required. (4) Angular deformity from faulty union. There is less excuse for this condition than formerly existed, because a radiograph taken through the splints will always clear up any doubts in the surgeon's mind as to juxtaposition of fragments. Although many devices have been produced for mechanically holding the bones in place, there is probably nothing better than stout silver wire, annealed by being passed through a flame and allowed to cool slowly. Osteoclasis or osteotomy may be called for and these are almost invariably singularly free from subsequent pain. (5) Shortening from overlapping of fragments. Illustrative cases of any success in treatment of this class of deformity will be of unusual interest. Here extensive myotomies, fasciotomies and tenotomies may be necessary. (6) Pseudo-arthrosis. There is nothing new regarding the treatment of this type. (7) Exuberant callus. This is most commonly found in fracture of the radius above the attachment of the pronator radii teres. Gighli's wire saw is in many cases the best instrument. (8) Separated epiphysis. As this occurs frequently in young children the Roentgen rays are of little help, no image of the cartilaginous epiphyses being given in the radiograph. It is better, if possible, to avoid wiring in these cases, owing to the fact that the foreign body in the bone often interferes with future growth; furthermore, the softness of the bone renders such ligation very difficult. (9) Fractures in the neighborhood of joints. These are frequently complicated by dislocation and in case the ordinary means fail, we should certainly follow the advice of McBurney in wiring the fragments. (10) Fractures involving joints. The two most common are fracture of the patella and of the acromion; although the technic of these operations is not difficult, they should not be undertaken without a certain regard to the constitution or condition of the individual case. In gouty individuals there is some form of rarefying ostetitis which often interferes seriously with success; furthermore, these cases do not take an anesthetic kindly. In operating upon the elbow it is convenient to open the joint from behind by chiseling through the base of the olecranon. This gives a particularly good view of the radial head and is the operation to be recommended for its removal; the olecranon is subsequently wired back in place. (11) Ischemic contracture. This troublesome deformity may exist alone or may complicate other deformities. It is commonest after fractures of the humerus. In the absence of other elements it can be alleviated by tendon elongation of all the flexor tendons above the wrist. This, however, is a difficult procedure and should never be undertaken until every other form of treatment has been exhausted. If an attempt be made to remedy the deformity by removing parts of the radius and ulna an ununited fracture is the result.

NEUROLOGY AND PSYCHIATRY.

Adiposis Dolorosa.—Only twenty-six cases of this rare disease have thus far been reported, of which all but three were described as found in women. Two additional cases are reported by F. X. DERCUM (Phil. Med. Jour., March 1, 1902) which present some interesting complications. Both were of the localized diffused form of the disease, the preponderance of fat in the male patient being found on the trunk, in the female on the thighs. While fatty deposits and pain are the two most prominent symptoms usually described, the author lays equal stress on the marked asthenia and psychic or general nervous symptoms. The asthenia does not appear to depend directly on the fatty deposit, for in the woman a few simple movements of the arms brought on excessive fatigue, although very little fat was developed there. A similar condition was present in the man. In addition to the usual neurasthenic disturbance, epilepsy of the grand mal type and preceded by a gastric aura was present in the male patient. Interesting eye phenomena were noted in both cases. In the man, accumulations of fat could be felt in the orbital cavity, and if the eyes were tested separately, moderate dilatation of the pupil in accommo-

dation was noted instead of contraction. In one eye of the woman was noted a circinate retinitis—a mass of partly fibrinous and hemorrhagic exudate in the center of the retina surrounded by crescents of fatty degeneration in Müller's fibers. As the patient was considerably younger than the age at which the latter conditions are usually found, the retinal changes were probably dependent on the same pathological cause.

Progressive Saturnine Paralysis.—Discussing the nervous manifestations of chronic lead poisoning, G. Bazzicalupa (Gazz. delgi Osped., Feb. 9, 1902) calls attention to the cerebrospinal syndrome represented by progressive paralysis. Analysis of an individual case, in which all etiological factors other than inherited neuropathic tendency and chronic lead-poisoning could be excluded, is used as the basis of an argument tending to establish the identity of saturnine progressive paralysis with dementia paralytica due to other morbific causes. The clinical picture duplicates that of the latter disease in its various stages; anamnestic data and certain concomitant symptoms characteristic of saturnism giving the key to causation of the malady. In view of the facility with which chronic lead-poisoning can be induced through canned food, occupation, etc., the author holds that saturnism should be considered as a possible etiological factor in all cases of progressive paralysis.

Intermittent Limping Due to Obliterating Arteritis.—A peculiar case is reported by C. L. Dana (Med. Rec., Feb. 22, 1902) in which the patient, while walking was suddenly siezed with pain, stiffness and weakness in the left foot. Disagreeable sensory disturbances were also present and the pulsations in the popliteal and plantar arteries could not be felt. Subsequent attacks followed and similar signs were later present in the left arm. Several instances of such cases have been reported and are due to arterial sclerosis, causing obliteration of the smaller trunks, also to disease such as aneurism of the larger arteries. The condition is chronic in course and may lead to gangrene or symptoms resembling erythromelalgia or Raynaud's disease. It affects usually one leg, but may attack both and may affect the arm. It occurs in middle-aged people of neurotic temperament and is associated with exposure, alcoholism, gout, diabetes, excessive use of tobacco, and with syphilis.

Cerebral Syphilis Simulating General Paresis.—In this case, reported by E. Brissaud and A. Péchin (Le Progrès Méd., Jan. 18, 1902), the symptoms were rather marked, and there were too many isolated phenomena to indicate positively a diffuse periencephalitis. There were epileptiform convulsions of Jacksonian type, motor aphasia, hallucinations of hearing, right facial paralysis, paralysis of the right arm and right hemianopsia. These all disappeared very promptly under intramuscular injections of oil containing biniodide, so that the patient felt and appeared as well and capable as he had ever been.

Scleroderma.—This condition has usually been considered due to disease of the trophic centers in various parts of the nervous system, not only spinal, but also cerebral and bullar. B. Sachs (Phil. Med. Jour., Feb. 8, 1902) advances the suggestion that some functional or organic, or perhaps toxic condition of the system influences these centers. In a like manner whether or not nerve influences be at work, the cause of myxedema is at present attributed to deficient thyroid action. Without claiming any analogy the author directs attention to the resemblance of symptoms between myxedema and the scleroderma and reports on the favorable action of the administration of thyroid gland in the latter condition. He gave the thyroid gland in five well-marked cases in doses of from two to six grains t. i. d. The effects varied and seemed least marked in cases in which the scleroderma appeared to be of neural origin. It was found necessary to increase the dosage until some improvement was noted and then the thyroid could be continued in smaller amounts. One patient was apparently entirely cured, but had to take the drug constantly to prevent recurrence of the symptoms; the others showed improvement in the greater pliability of the skin and in freedom from scaling. A more careful trial is urgently advocated.

Resection of the Sympathetic for Trigeminal Neuralgia.—This operation has effected a cure in eight cases so treated by its originator, G. Cavazzani (Gazz. degli Osped., Jan. 26, 1902), the last case being the subject of this paper. The point of resection was the superior cervical ganglion, and the relief experienced is believed to be due to modification in the nutrition of the Gasserian ganglion by resection of the filaments which connect it with the sympathetic. In none of the cases, whether operation was limited to one ganglion or included a larger portion of the cervical sympathetic chain, were there permanent ill-effects due to destruction of the sympathetic function. The author believes that the success of this method in his personal experience, as well as in the hands of other surgeons, should place it among the classical operations for trigeminal neuralgia.

Sympathectomy in Basedow's Disease.—Animal experimentation has shown that exophthalmos may be induced by irritation of the superior ganglion of the cervical sympathetic; hypertrophy of the thyroid has been attributed to the influence of the middle cervical ganglion. Working upon the theory that Basedow's disease is due to irritation of the cervical sympathetic, D. C. Ballarin and D. C. J. Munoz (Rev. d. Med. y Cir. Pract., Feb. 7, 1902) performed bilateral sympathectomy in a case exhibiting typical symptoms of exophthalmic goiter. The patient is said to have recovered from the operation within fifteen days; convalescence being perfectly uneventful. At the present time, four months after the operation, there is marked decrease in exophthalmos, the eyelids now covering the eyes in sleep, whereas formerly they were widely open, palpitations have ceased, and the pulse has been reduced from 150 to 110 per minute.

Psychoses among Jews.—It is remarkable that all but one of the cases of amaurotic family idiocy so far reported have occurred in Jewish children. Impressed by the large proportion of Jews among his cases of periodical insanity, Pilcz (Ann. Medico-psychologiques, Jan.-Feb., 1902) was led to take up the study of mental diseases among Jews in general. From a review of the literature he cites the following: Kraepelin states that the Jews are more prone to mental and nervous diseases than are the Germans, explaining this fact as being probably due to the greater frequency of consanguineous marriages among the former, this view being concurred in by Kirchhoff and Krafft-Ebing. Hirshl found 20 Jews among 100 cases of paralysis. Beadles found a large and abnormal proportion of Jews among his cases of general paralysis (21 per cent.), these figures relating only to males, no difference in this respect being found among females. From his own observation of the cases in the psychiatric clinic at Vienna, Pilcz cites the following statistics: Among 1,219 cases submitted 134 were Jews, a proportion of 10.9 per cent. The Jews form 8.8 per cent. of the general population of Vienna. These figures prove the excessive proportion of Jews among psychiatrical patients, at least so far as Vienna is concerned. Although alcoholism formed the larger proportion of all the cases, reaching the number of 173, not a single case was found among Jews. These also form no pre-

ponderance in cases of dementia, although in dementia secondary to acute psychoses a marked preponderance was found in Jewesses, while in precocious dementia Jews furnished an excessive proportion of cases. From these facts he draws the conclusion that so far as the psychoses incipient at an early age are concerned Jews are in greater danger of becoming dements than are people of other races. Few Jews are observed among cases of moral insanity. All the psychoses of which Jews show the largest proportion of cases are those in which the congenital psychopathic constitution, the so-called "heredito-degenerative" type, forms the principal etiological factor. The large proportion of cases of progressive general paralysis found in Jews leads the author to speculate that the "struggle for existence" among this nationality is the principal etiological factor. There was no difference to be observed between Jews and other people in cases in which the etiology includes causes such as hetero and auto-intoxications, vessel changes, and cerebral lesions.

Relation of Syphilis to Diseases of the Spinal Cord.—In a study of this subject R. V. F. Mohedano (Rev. d. Esp. Med., Year V., No. 63, 1902) reaches the following conclusions: That which gives syphilis a special character as an etiological factor is its indefinite duration, causing it to act not only through the production of local lesions, but as a chronic intoxication. (2) Syphilis may attack any of the organs, but it shows marked predilection for the nervous system. (3) It is not possible through pathological anatomy, symptomatology or time of appearance to separate precisely syphilitic diseases from those known as parasyphilitic. (4) Not all cases of myelitis in individuals who have suffered from syphilis are necessarily of syphilitic origin; neither does the existence of syphilis preclude the possibility of other causes acting. (5) Syphilitic myelitis may appear at any time after infection. (6) The gravity of the infection does not always bear direct relation to the frequency and gravity of medullary affections. (7) The only lesion which can be considered characteristic of syphilitic myelitis is gummatous infiltration, either circumscribed or diffuse. (8) Syphilis may affect simultaneously or successively various parts of the central nervous system. (9) Medullary lesions rarely remain limited, the meninges almost always becoming involved. (10) Medullary syphilis does not present any special symptomatic picture, but may give rise to any medullary syndrome. (11) The diagnosis is based mainly upon a syphilitic history. (12) Syphilis is the most frequent though not the only cause of tabes; there is nothing to justify the belief that ataxia is always of syphilitic origin. (13) The syphilitic nature of an affection should not be judged by the effects of antisyphilitic treatment.

PATHOLOGY AND BACTERIOLOGY.

Snake Venom and the Blood.—A research has just appeared from the Laboratory of the University of Pennsylvania upon "Snake Venom in Relation to Hemolysis, Bacteriolysis, and Toxicity" (Flexner and Noguchi, Univ. of Penna. Med. Bull., Feb., 1902) which promises to be of fundamental importance in its therapeutical applications. By hemolysis is meant the solution of the corpuscles, including erythrocytes and leucocytes of the blood. Such solution is produced by certain inorganic substances and also by various complex agents derived from living plants and animals. Of all such agents, the most active are found in the blood of alien animal species; others are the products of cellular activity, such as venom, and certain toxic products of bacterial growth, as tetanolysin, etc.; still others are yielded by some of the higher plants, as "crotin." After admixture of the corpuscles of the blood with any of these agents, the former first run together, or become "agglutinated"; secondarily, they are dissolved and destroyed. These phenomena of agglutination and of lysis, as seen in the blood, have their counterpart in the actions of certain sera upon bacteria as evidenced by the Widal reaction with typhoid bacilli and by the Pfeiffer phenomenon with cholera spirilla. It has recently become possible not only to demonstrate the fundamental similarity of bacteriolysis and of hemolysis, but to provide a chemical explanation of the processes involved. The agglutinating principle, briefly described as "agglutinin," is distinct from the dissolving one. The latter contains two substances, of which one is stable and is the product of immunization—the intermediary body; the other, which is very unstable, is normally present in the body juices and is known as the complement. The union of the intermediary body with the cells (bacterial, blood-cells, etc.) makes it possible for the complement to come into action and produce solution. It is upon the foregoing facts that the experiments of Flexner with various kinds of venom and various species of sera were based. He showed first that the venoms were capable of producing both agglutination and solution of blood-corpuscles. Marked differences in susceptibility to agglutination were observed in comparing various species of animals, and the agglutinating and the lytic powers of the venom were found to be distinct and separable factors. In the experiments directed toward determining its hemolytic powers, it was found to contain several intermediary bodies, each of which was given up in succession when brought into contact with different species of blood-corpuscles. These intermediary bodies showed special affinities, then, for the complements contained in the blood of the respective animals, and lysis resulted. It was found that the agglutinating principle is identical for red and white cells, but that the dissolving principle for leucocytes is distinct from that for the red cells. The most important part of the research was directed toward determining the effects of venom upon the bactericidal properties of blood-serum. The bacteria used were B. typhi, B. coli, and B. anthracis. It was found that all the venoms experimented with, when used in sufficient quantities, destroyed the bactericidal properties of many normal blood-sera. The manner of the destruction consists in the fixation of the serum-complements by the venoms. Upon the intermediary bodies of serum, the venoms have no action. If, therefore, the venom is incapable of uniting with the complement, as in Necturus, the original bactericidal properties remain unaffected by the presence of the venom. Calmette's antivenom was tested, with regard to its restraining action upon venom-hemolysis and venom anti-bacteriolysis. The substance was found to neutralize venom, and to remove both the hemolytic and the anti-bacteriolytic actions therefrom.

Decomposition of Albuminoid Substances in Excessive Fatigue.—The effect of overfatigue upon the body has been considered from various standpoints; A. Mosso demonstrated a poison in the blood of dogs after exhaustive fatigue. C. Jackson (Arch. Ital. d. Biol., Tome xxxvi., Fasc. 3, 190) has studied the effect of overwork upon the urine. Before and after an extended walking tour, the urine of five men, ranging from seventeen to sixty-two years of age, was examined. The most noticeable effect of exhaustion from the journey was a marked increase in the elimination of nitrogen in every case. It is known that a great part of the nitrogen from food ingested is eliminated in the form of urea, this later increasing with nutrition. The nitrogenous increase in the specimens examined could not, however, be attributed to increased nourishment as, in one instance, the journey was made prac-

tically fasting, urea being reduced one-half in consequence. The hypothesis is advanced that excessive fatigue is a pathological condition in which the substances eliminated by the body are not only increased, but changed in such a way as to indicate dissolution of tissue, probably muscular.

Effect of Splenectomy upon the Bile.—An interesting study of this subject through animal experimentation is reported by A. Pugliese (Bull. delle Scienze Med., Year lxxii., Series viii., Vol. 1), the conclusions reached being that the influence of splenic enucleation upon the quantity of bile secreted is not marked, neither does splenectomy modify to any extent the elaboration by the hepatic cells of biliary acids. The most noticeable effect of exsection of the spleen was diminution in the coloring matter of the bile, the author deducing from this fact that an important function of that organ is to accumulate and pass on to the liver, through the portal vein, such material as is necessary to the formation of biliary pigment by the hepatic cells. After removal of the spleen, this material is distributed to other parts of the body, and only reaches the liver in small quantities through the general circulation; hence the diminished elimination of biliary pigment.

Agglutination of Malarial Blood.—This subject is again discussed by D. Lomonaco and L. Panichi (La Riforma Medica, Feb. 12 and 13, 1902), who give the outcome of recent experiments as follows: The serum of malarial subjects gives the same reaction as the blood, conditions of success being that the specimen be obtained by Widal's method of serum diagnosis, *i. e.*, by means of a capillary tube applied to the punctured finger, the serum being allowed to separate naturally, as it does upon standing a few hours, and that the mixture with the normal blood be made drop by drop. If a healthy individual be subjected to bloodletting and the serum separated by centrifuge, agglutination always occurs even if the red cells of the same individual be added. Agglutination is never obtained with the normal specimen when Widal's method is used. In the opinion of the authors, variations in technic account for the fact that the diagnostic value of the agglutination phenomenon has been questioned. It is further observed that quinine does not affect agglutination of normal specimens improperly treated and that in the blood of patients suffering from other infections, whether associated with malaria or not, agglutination persists *in vitro* even when the serum is diluted with strong solutions of quinine. The writers sum up as follows: (1) The blood or serum of a healthy subject mixed with the blood of another healthy subject is non-agglutinating. (2) The serum of a healthy individual acquires agglutinating power if obtained in such manner as to injure the red cells. (3) Addition to malarial blood or serum of an equal volume of an isotonic solution of sodium chloride, containing 1 per cent. of quinine, causes disappearance of the agglutinating phenomenon. (4) This property serves to determine the malarial nature of a given specimen. (5) In malarial serum or blood, so treated, persistence of the agglutination phenomenon indicates the presence of some other infectious process. A further series of experiments was carried out for the purpose of differentiating between agglutination of malarial blood and that of blood in other diseases. For this purpose the blood was diluted with the physiological solution, the degree of dilution causing disappearance of agglutination in each specimen to be noted. In most instances agglutinating power was destroyed after dilution of 1:1; in a few cases typhoid blood showed agglutination after dilution of 1:3 or 1:4. The highest agglutinating power was shown in malarial blood, the phenomenon being observed invariably in dilutions over 1:5. Hence it is concluded that specimens which retain their agglutinating power in dilutions over 1:5 may be considered as malarial.

GENITO-URINARY AND SKIN.

Treatment of Chronic Eczema.—There is no rational therapy of this distressing disorder which does not take into very careful consideration its undoubted staphylococcic origin. While we are not yet in a position to produce proof positive that germs are the causative factor in every case it is at least significant that treatment directed toward destroying germ life in the most potent of cure in the worst and most chronic cases. A. Eddowes (Brit. Med. Jour., Feb. 15, 1902), after dwelling on the very great importance of first carbolizing the skin before applying Unna's zinc gelatin, gives a sort of *vade-mecum* series of pertinent remarks touching on the general principles of treatment. "Is a patch of eczema chronic and dry, we must moisten and grease it. If too wet, we must dry it. If swollen, we must raise and support it; if hot, we must cool it; if painful, we must soothe it; if due primarily to microbes, we must kill or check them. If there be great-cell infiltration, we must excite absorption; if dead scales cover the surfaces and prevent our medicines from acting, we must remove them; if the part is being irritated in any way, it must be protected or all treatment will fail." It is very difficult to draw anything like a sharp distinction between chronic and acute eczema. Granted that the symptoms are due to infection, the treatment in the acute condition will not vary much from that of chronic stages. It must not be forgotten, however, that there are in many cases associated causes and complications, such as constipation, dyspepsia, gout, tubercle, urticaria, syphilis, and that the case may be gravely aggravated by sunlight, heat, cold winds, wet, plants, discharges of one kind or another, and scabies. The internal remedies may be summed up as follows: Gray powder, calomel, aloes, citrates and carbonates, iron, quinine, strychnine, occasionally colchicum, and still more rarely arsenic—these will be all one needs. In many cases the diet is all-important. This is particularly true of children; often the addition of meat-juice or cod-liver oil will work wonders and frequently thyroid extract is all that is required. In fine, then, in all cases the parts should be carbolized before Unna's paste or any other protective is applied; generally the accompanying constitutional treatment should be decided upon almost exclusively by the history of the case.

Operations upon the Prostate.—In order that the best results may be obtained from operations upon enlarged prostates, it is necessary to understand the particular indications which each operation meets, for it is impossible to cure or even improve every case by a particular routine method. The five different procedures at present in favor with the profession, according to E. H. Fenwick (Practitioner, Feb., 1902), are: (1) resection of one or both vasa deferentia; (2) removal of one or both testes (orchidectomy); (3) division of the prostate at the urethral opening through perineal section; (4) division of prostate by an electrocautery knife passed along the urethra (Bottini); (5) removal or enucleation of obstructing parts of prostate by perineal or suprapubic section. Each one of these operations has its particular effect and hence it is necessary to first find out the shape, size and form of the obstructing organ. The result of a vasectomy is similar to that of an orchidectomy, but very much less pronounced. The prostatic lobes in health correspond in functional activity with the testes, and hence abrogation of the function of the latter causes a shrinking of the prostate, but it is not general atrophy as many suppose. The prostatic lobe corresponding to an absent testicle usually

becomes broader and flatter than the other, the lobe becomes firmer and when both testicles are removed the sulcus between the prostatic lobes becomes deeper, corresponding to an atrophy of the verumontanum and structures around the urethra, the function of which depends upon the preservation of the sexual act. The median lobe is seldom affected by this procedure. In the median lobe group of cases the hypertrophy may be due to fibrous or adenomatous growths, but in either case a suprapubic cystotomy is usually the best method, and in the adenomatous variety the growth can be easily shelled out. In the fibrous variety the lobe must be removed preferably by the flap operation. There is a group of cases in which the only obstruction is in the form of a projecting bar or collar at the orifice of the urethra, the canal being otherwise free. The gland is only moderately enlarged, but very firm or even hard. The interlobar fissure is very slight or filled up by a ridge of fibrous tissue which denotes an "iron-bound" gland unsuited for perineal or suprapubic enucleation. A beginning hard cancer of the prostate is sometimes mistaken for a gland of this variety. These dense prostates are best treated by a median perineal section, dividing the fibrous collar, up to the neck of the bladder. In the adenomatous variety rectal examination shows a huge elastic prostate projecting backward, with a sulcus almost obliterated to a line by intraprostatic tension, and in addition a distorted lengthened prostatic urethra. Enucleation is distinctly indicated in these cases and can usually be easily done either by the perineal or by the suprapubic route, the latter being preferred by most surgeons, unless the patient is very weak. Only about 50 per cent. of prostates are of this nature, however, and hence enucleation can be performed in only about one-half of the cases. In short, there are two essential groups of general enlargement of the prostate—the small, tough, flat, unshellable prostate, which generally has a filled-up sulcus, and the large, soft, elastic, projecting, shellable prostate, which has a fine line of sulcus.

Perineal Prostatectomy.—An operation which avoids injury to the bladder and is applicable to all forms of prostatic enlargement is proposed by A. H. Ferguson (Jour. Amer. Med. Assoc., Feb. 22, 1902) who reports good results in six cases. The prostate is exposed by a median perineal incision and the capsule is opened transversely. The gland is enucleated with the finger and removed piecemeal by special forceps, no effort being made to save the posterior portion of the prostatic urethra. A gauze-covered drainage-tube is introduced into the bladder, after the latter has been flushed out, and is allowed to project from the partially-sutured perineal wound. The author claims that this method affords the most direct route to the prostate and avoids injury of the bladder or surrounding parts. By working within the capsule hemorrhage is avoided. Perineal drainage is more complete and danger from septicemia is not as prominent as in the suprapubic operation. Uremia is less likely on account of the short anesthesia and there is less accompanying shock.

Treatment of Gonorrhea.—The treatment of gonorrhea has recently been subjected to such an upheaval, especially by Guyon and his school, that general practitioners are apt to ask themselves whether they are really up-to-date with their older and less radical methods of cure. The entire question has been reviewed with much fairness and sanity by Heaton (Birmingham Med. Rev., Feb., 1902), who has had a wide experience. As regards acute gonorrhea, he condemns the so-called abortive treatment by means of the injection of a solution of nitrate of silver of gr. xv. or xx. to ℥i. The disease frequently fails to abort within the promised fourteen days. In fact, the gonorrhea often pursues its course unchecked, or the acute symptoms may even be accelerated and intensified. Moreover, there is risk of urethral and of periurethral abscesses, and of secondary strictures. Systematic treatment and very frequent irrigations of the anterior urethra during the early stages with mild antiseptics are also discarded as too tedious and laborious. The general treatment in acute cases is of great importance. In so far as possible, absolute physical rest should be enjoined. The patient should be kept on a reasonably low diet and fluids should be given in considerable quantity. Hot hip-baths are of great service. Both penis and scrotum are to be supported by bandages. Free exit must be given to the urethral secretions, and the glans penis must be bathed at least twice daily to keep it clean. The drug treatment is symptomatic in the early stages. The oleoresins at this stage only do harm. A brisk purge to relieve the bowels, aconite if constitutional disturbance be prominent, alkalies and hyoscyamus to soothe the mucous membrane of the urethra, will fulfil most of the requirements. When the discharge is profuse, some very mild antiseptic mixed with an anodyne is to be used as an injection to wash out the inflamed canal; one to two drams of the fluid are to be injected, without the use of any force, and to be retained for one or two minutes. As the acute stage subsides and during the whole of the stage of gleet the various oleoresins form the sheet anchor as internal medicines. Sandal-wood is the most efficacious and least likely to disturb digestion; it is best given in capsules. Cubeb is especially useful in the more chronic cases. At the same stage of the disease, which is marked by a comparative thinness of the discharge and by a decrease in the ardor urinæ, the local treatment is altered. Astringent solutions are now indicated. The most useful of these is permanganate of zinc in a strength of gr. ⅛, increased to gr. ½, to ℥i. The other sulphates, also protargol, are likewise valuable. The great majority of cases of acute gonorrhea may be cured by these means within from four to five weeks. Those which persist and those which reach the practitioner after years of neglect fall into the category of chronic gleet and require an absolutely different plan of treatment. The persistence of the disease may be due either to trouble within the anterior urethra, such as an unhealthy condition of its entire mucosa, or a slight stricture with ulceration behind it, or "granular patches," or to trouble posteriorly, such as inflammation or abscess of the deep lacunæ or ducts, or chronic inflammation of the prostate. The use of the cold metal bougie often exerts a marked beneficial effect upon the chronically-inflamed anterior urethra. Local patches are diagnosed by the use of the endoscope, and are treated by direct applications of strong solutions of silver nitrate, gr. xv. or xxx. to ℥i., or protargol, 5 to 20 per cent., made twice or three times weekly. If the trouble lie in the posterior urethra or in the prostate, it is very likely to prove extremely obstinate. The use of the cold metal sound, the daily use of medicated urethral bougies introduced into the deeper portion of the urethra, the instillation of a few drops of some strong astringent by means of a special deep syringe, the daily use of large quantities of some mild astringent introduced under pressure—all these are measures which must be successively and patiently tried, perhaps only to fail.

THERAPEUTICS.

Quinine as a Dressing.—Quinine has been used in lotion for various diseases, but combined with cod-liver oil externally it seems to be a new remedy, according to J. Read (Lancet, Feb. 15, 1902). He employs it with good results, one dram of quinine to eight

ounces of cod-liver oil, to be shaken well before being used, in tertiary and rheumatic ulcers of the leg and for ordinary ulcers, gangrene of the skin, burns in which large surfaces have sloughed away, and other allied conditions. All wounds take on a healthy and kindly action and pus from the surface smells sweet and contains a limited number of germs. There is nothing to recommend the preparation in the way of cheapness or odor, but it has the advantage of supplying a weakened system with an oily food and a tonic drug. For intertrigo its effects are good, if not too long continued. For eczema it does not act well, unless at the same time gastric troubles are corrected.

Injection Treatment of Tuberculosis.—The intravenous injection of sodium cinnamate in the treatment of tuberculosis is again receiving considerable attention. The method is usually only applicable to early cases, and in the words of its originator, Landerer, the whole process may be summed up by saying that the treatment substitutes, by the resulting marked leucocytosis, an active aseptic inflammation for an inactive one and the issue is rapid cicatrization. A. Mann (Phil. Med. Jour., Mch. 1, 1902) submits a report on the progress of cases formerly treated and gives the results of further experience. Of ten cases, two mild ones are apparently entirely cured, and of the other rather severer ones only one (with tuberculous laryngitis) is hopeless, the others all holding their own and even showing some improvement. Seven new cases are reported, four patients, with moderate involvement of the apices, showed an almost entire absence of physical signs and marked gain in weight and condition. Another in whom the process had been present for twenty years, with signs of a large cavity showed unmistakable improvement, with diminution of symptoms, although the cavity has persisted. A patient with infiltration of both lungs, numerous hemorrhages, etc., had an intercurrent attack of smallpox during the treatment, which, judging from the sudden amelioration of symptoms, may have destroyed the virulence of the tuberculous poison. A final case with extensive tuberculous lymphadenitis showed great improvement after two months' treatment. It is to be noted that although the climatic conditions (Denver) may have had a favorable influence, the improvement continued after patients had returned to their homes.

Milk Alimentation in Adults.—Most ancient of all known foods and remedies, milk has in the past thirty years become more and more the regimen of invalids according to the wide testimony of our hospitals. R. Lepine (La Sem. Méd., Fed. 19, 1902), in discussing the practicability of using it in the adult, turns first to a discussion of its composition. Per thousand grams it yields from 110 to 135 grams of dry material. The fat varies according to the animal from which it is drawn; under certain conditions of favorable feeding it may reach 70 grams, goat's milk is much higher than this. Lactose, which in the intestine breaks up into glucose and galactose, averages from 37 to 55 grams per liter. It is noticeable that milk is particularly rich in phosphorus; this varies from 25 to 55 grams per liter. Aside from these well-known constituents there are one or more ferments capable of an automodifying action which affect the caseine to a very considerable extent. Citric acid is another factor not to be classed among the ordinarily recognized ingredients. Can milk, in its purest form, be considered suitable food for an adult? Surely not, for the adult stomach under normal conditions will not digest it as well as the stomach of an infant. The non-absorption, however, of a notable fraction of the albuminoids and of the fat of milk is not its only defect; the lack of stimulation to the nervous system is a more important factor. "Life," said an old master, "is entirely dependent upon excitement." If this proposition were exactly true, milk could not sustain life. These are some of the defects in milk; happily, however, they are no serious disadvantage in its use in certain diseases. Among the more important of these should be named the disorders of the digestive tract, particularly round ulcers of the stomach, albeit there are certain conditions of the rectum in which milk alimentation gives as good results as in gastric ulcer. In many of the diseases of the liver, milk is admirable, particularly in the treatment of catarrhal jaundice, in which it is said by some to be almost curative. In Bright's disease, because it gives rise to but few toxins and because of its great diuretic power, it is of perhaps greater value than in any other disease. In febrile disorders, it has long constituted the chief food. Depending upon the fact that it nourishes without exciting, milk has an admirable use in many nervous diseases. In diabetes, if one believes Dongkin, who places his patients upon an exclusive diet of skimmed milk and gets good results, it would seem to be indicated, but since each liter of milk gives only 650 calories of heat, 6 liters, which is the amount prescribed by him, must yield 2,400, which is altogether too little for a diabetic. It is probable that the good results noted in these cases are only apparent.

EYE, EAR, NOSE, AND THROAT.

Chronic Progressive Deafness.—This form of deafness occurs quite insidiously without warning, pain or discomfort, and is apparent to the individual only after a marked impairment of hearing has taken place. In contradistinction to deafness which is secondary to the diseases of the ear, M. Collier (Medical Press & Circular, Feb. 5, 1902) calls this chronic progressive deafness. The etiology of this affection, like that of most of the affections of the upper respiratory tract, requires for its understanding knowledge of the laws of physics and pneumatics. It is too often found that ordinary writers through ignorance of the subject really deny that the tension of the air in the cavity of the ear must be the same as that of the outside ear in order to insure a free and normal vibration of the drumhead. It is also erroneously contended that obstruction to the free inlet of air to the tympanic cavity produces no difference in the tension of the air within that cavity. Many consider new the theory that if the normal extravascular pressure be diminished in the tympanic cavity the intravascular pressure will assert itself by dilating the tissues and vessels generally under the lessened pressure. An important point which the author makes is that the tympanic cavity is a part of the nose, both anatomically and developmentally. Affections of the nose and the tympanum have a close affinity. Both the tympanic cavity and the other cavities leading from the nose are anatomical parts of and extensions from the nose cavity and any alterations in the physical condition of the bones of the nose cavity will be communicated to and affect the patent extensions from this cavity. Under normal circumstances the contents of each cavity have a free intercommunication. The tension of the air within the nose is the same as the tension of the air within the tympanic cavity and both are the same as that of the air in the surrounding atmosphere. The tubotympanic cavity is a part of the upper air-passages as much as is the antrum or any of the accessory cavities of the nose. It is lined with an extension of the same membrane that lines the nose and is covered with the same sort of ciliated epithelium, but differs in this one respect, that it partakes of the character of, and is virtually, a periosteum. This dif-

ference in the constitution of the lining of the tubo-tympanic cavity greatly increases its importance both physiologically and pathologically. This anatomical continuity between these cavities is the ground upon which all the other causes of middle-ear disease rest. These are so well known as not to need enumeration, and it is necessary to add only that all conditions of the nose and the other accessory cavities of it have a direct bearing upon this form of deafness. The treatment therefore consists in removing at an early date all chronic conditions of the nose and its appendages, in the effort to cure or to prevent chronic progressive deafness.

Eye Defects and Mental Dulness.—By far the most frequent defects of the eye which may cause apparent mental dulness and deficiency in children, writes C. S. BULL (Pediatrics, Feb. 15, 1902), are anomalies of refraction. In the order of frequency, though not of importance, these are hypermetropia, astigmatism and myopia. The subject of the first may be dull and stupid, because the eye-strain renders him incapable of any sustained mental effort. Astigmatism may lead to a train of reflexes such as will handicap a child seriously. The myopic child may not see the blackboard, the maps on the wall, or what is going on in the playground unless he is close by, and his companions jeer at him for his stupidity. This makes him self-conscious and perhaps perverted in his tastes. Insufficiencies of the ocular muscles causing squint produce headache, eyeache and mental confusion, and by application to work these become so marked and constant that the child is no longer capable of continuous mental effort. These children are often unjustly punished for backwardness. The rarer ocular defects causing mental deficiency are congenital cataract, dislocation of the lens, absence of pigment in the uveal tract, especially the iris, coloboma and aniridia. This last exposes the eye to too much light. There is also a congenital want of visual memory, nine cases of which have been recently reported, due to an organic deficiency in the part of the brain where the visual impressions of letters, etc., are registered. These children are quite unable to learn to read.

THERAPEUTIC HINTS.

Rheumatism in Children.—The following is well borne by the stomach, the bitter taste disguising the unpleasant sweetness of the salicylate:

℞ Sodii salicylatis .....gm. 4.0 (℥i)
Liq. potassii citratis ..... 60.0 (℥ij)
Tinct. cardamon. comp.....ad 90.0 (℥iij)
M. Sig. Two teaspoonfuls every two hours for a child five years old.

A useful external application to the joints is:

℞ Ol. gaulther .....c.c. 30.0 (℥i)
Alcohol ..... 15.0 (℥ss)
Lin. chloroformis .....ad 120.0 (℥iv)
M. Sig. Apply externally on cotton.—W. M. POWELL in Diseases of Children.

Nutrient Enema.—A nutrient enema frequently employed at St. Luke's Hospital is:

℞ Yolk of one egg.
Beef peptonoids .....c.c 8.0 (℥ij)
Peptonized milk ..... 180.0 (℥vi)
Whisky ..... 30.0 (℥i)
Sodium chloride .....a pinch

A stimulating enema is

℞ Whisky .....c.c 15.0 (℥ss)
Black coffee .....120.0 (℥iv)

Gall-stones.—Diet, exercise and diluent beverages combine to favor the disappearance of the stone. As a rule, too little water is taken in these cases. Alkaline saline waters stimulate peristalsis and increase the flow of blood to the abdomen, the bile-passages being massaged by the former and the diseased mucous membrane benefiting by the latter. These salines do not dissolve the stones, for such allowed to stand two weeks in a 1-per-cent. solution of sodium salicylate, benzoate, phosphate, sulphate, bicarbonate, or chloride, potassium sulphate or ammonium chloride suffered no loss of weight. Allowed to stand in olive oil, however, a gall-stone lost 68 per cent. of its weight in two days and then disintegrated. The solid matter of a stone becomes viscid in a few hours in a 5-per-cent. solution of animal soap. Large doses of oil, probably do not reach the gall-stone directly, but by producing an increased proportion of fat, fatty acid and soap in the bile, cause it to have a solvent action on the cholesterin of the stone. For this method of treatment from two to ten ounces of oil should be given daily, and the results are very questionable. Massage of the gall-bladder would, in many instances, be useless or harmful. During a gall-stone attack relief is urgently demanded. A pint of water taken as hot as possible, with hot fomentations over the liver, may give relief, or c.c. 1.0 (♏xv) of spiritus etheris in two teaspoonfuls of chloroform-water every quarter of an hour. Exalgine, gm. 0.06 (gr. i), every half-hour for three or four doses is also of service. These failing, morphine must be used.—Mayo Robson in Allbutt's System of Medicine.

General Septic Peritonitis.—Formerly, in these cases, G. E. ARMSTRONG (Montreal Med. Jour., Feb., 1902) withheld opium and endeavored to secure free movements of the bowels. The plan which he has adopted of late, however, is to arrest peristalsis and promote the elimination of poisons by stomach lavage, rectal feeding entirely replacing stomach feeding, and the administration of opium or morphine hypodermically. The use of this latter before surgical intervention should be strongly condemned, because, of course, the initial cause of the peritonitis must be attacked by operation. Stomach lavage promotes better breathing and lessens vomiting and peristalsis. The author also advocates more frequent operation under local anesthesia in these cases.

Uncontrollable Vomiting.—The following treatment is especially adapted to the vomiting of pregnancy, though it may be used in emesis from other causes:

℞ Cocaine hydrochlorate ..... .10 (gr. ij)
Antipyrin ..... 1.00 (gr. xv)
Distilled water ..... 100.00 (℥iiiss)
Sig. A teaspoonful every half hour.
Or:
℞ Cocaine hydrochlorate ..... .50 (gr. viij)
Distilled water .....50.00 (℥iss)

Sig. Six drops, repeat in one hour, then in three hours if necessary; after this reduce to three or four drops before meals. For local application by means of tampon to cervix in vomiting of pregnancy or of acute metritis:

Cocaine hydrochlorate ..... 1.00 (gr. xv)
Ext. belladonna ..... .25 (gr. iv)
Vaseline .....10.00 (℥iiss)

Upon the theory that vomiting of pregnancy may be due to general intoxication of the system, Condamin suggests injection, preferably rectal, of artificial serum, three to four liters daily; 300 grams being slowly injected at one time. If peristalsis be excited, the injection should be suspended and resumed later. In cases of great intolerance a few drops of laudanum may be added. For nourishment LUTAUD advises plasmon, beginning with a teaspoonful after each dose of cocaine.—Jour. d. Med. d. Paris, Feb. 23, 1902.

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THE EVOLUTION OF TYPHOID NOSOLOGY.

Time was, and not so many years ago, when typhoid fever was considered to be a febrile disease the specific anatomical basis of which was an ulceration of the intestines. The systemic symptoms of the disease were looked upon as due to the absorption of toxic materials from the bowels. At first these toxic materials were thought to owe their origin to chemical substances produced by the breaking down of the intestinal ulcers, hence the apathetic state of the patient during the third week of the disease when the ulcerative process reached its climax. Later came the idea that toxic substances which caused the general symptoms were produced during the growth of the specific bacteria of the disease. In recent years as the result mainly of bacteriological investigations there has come the realization that the pathologico-anatomical basis of the disease is most frequently, though by no means necessarily, located in the intestines. Extra-intestinal typhoid fever is no longer a theory, but a demonstrated fact. The biliary tract, the lungs and the meninges are especially liable to invasion by typhoid bacilli, and the bacilli may fail to affect any other tissues except these. Bacteriological investigations and especially of late the Widal reaction have demonstrated that many anomalous febrile conditions utterly unsuspected before of being typhoid in origin are really due to the presence of the bacillus of Eberth.

For many years it was thought that typhoid fever was rare in children under five years of age. Some ten years ago a distinguished specialist in children's diseases insisted that the disease was so rare during these early years as to be justifiably excluded at once when a question of doubtful diagnosis in children's febrile affections was under consideration. The use of the Widal test as shown by the series of cases reported from Mt. Sinai Hospital (see page 588) demonstrates not only that typhoid fever is not rare in children, but that it is quite as frequent during the first five years of life, considering the opportunities for infection at this time, as during any corresponding subsequent period. The most interesting observation with regard to typhoid fever in very young children is that the disease runs, as a rule, an anomalous and often extremely atypical course. It is evident that in most cases its true nature remains unrecognized.

Typhoid fever in the early years may, for instance, simulate lobar pneumonia so completely as to present no symptoms beyond those found in the respiratory tract, symptoms indicative only of a process of pulmonary consolidation which clears up not by crisis, but by lysis, and this is of course not unusual, even in the ordinary pneumonia of children. A classical picture of meningitis may be the result of meningeal invasion by the typhoid bacillus, no symptom pointing to any localization of the bacilli or their products in any other part of the body. The most difficult diagnoses occur, however, in cases of acute intestinal disturbance with more or less continued fever. In these patients the fever is set down as due to intestinal irritation, while its irregularity is supposed to exclude all necessity for thinking of typhoid. During the season of maximal prevalence of typhoid fever many cases presenting symptoms ordinarily quite distinct from this disease will prove if submitted to the Widal test to be true cases of typhoid fever, according to our present knowledge of the disease.

This is also true of certain cases in adults in which there is very little ground for the clinical diagnosis of typhoid fever. On the other hand, certain clinically typical cases of typhoid fail to give the Widal reaction. Dr. Ewing in his important paper on "Serumtherapy in Typhoid Fever" (see page 577) attributes this peculiarity to the fact that not even all the types of clinical typhoid fever are due to the

same form of typhoid bacillus. The serum of a patient suffering from any given form of typhoid fever produces its most characteristic reaction only with cultures of the species of bacillus which has produced the fever. The variations in typhoid bacilli are well known: hence the different degrees of success of the Widal reaction. A corresponding state of affairs exists with regard to the therapeutic action of streptococcus serum. Antistreptococcus serum has a beneficial effect only in cases in which it is prepared from exactly the same variety of streptococcus as produces the pathological condition to be treated. The number of differing streptococci is legion; hence the dissatisfaction with this remedy. Long ago it was shown that if lesions were produced in the ears of rabbits by the injection of different cultures of streptococci, one set of lesions might be rapidly cured by the subcutaneous administration of antistreptococcus serum, while the set of lesions in the other ear, absolutely uninfluenced by the remedy, continued their course as before.

The Widal test has proved its usefulness as a diagnostic aid. It has not proved to be all that was at first claimed for it: more especially at the beginning of typhoid fever when some pathognomonic sign would be of the greatest service. Widal's work, however, and the general introduction of the test throughout the world promises to be of special service in opening up new vistas in our knowledge of typhoid fever. There is good reason to hope that the recognition of various types of typhoid fever will become possible and that the prognosis of the disease, as regards the possibility of its abortion and the probability of a relapse in any given case, will become more assured. No single advance in medicine can be judged by itself, but by its influence upon cognate truths. In its suggestive value for further investigation the Widal test has been very rich. Its employment and the critical adjudication of its results promise a new era in our knowledge of an extremely important department of medicine.

PRACTICAL POINTS ON THE DYNAMICS OF LIFE.

Professor Loeb of the University of Chicago has been delivering at Columbia University during the past two weeks a series of ten lectures on the Dynamics of Life. As Dr. Loeb's work in biology is attracting much attention, popular as well as scientific, it is almost needless to say that the lectures gave in scientific terms the results of simple but suggestive scientific investigation, and the last thing that could be thought of was any attempt to make his conclusions have a wider application, or his observations a more far-reaching significance than was justified by the actual facts.

Certain of the recent biological advances have a special interest for medical men because they touch more or less nearly on topics of practical medical import. For instance, it has long been one of the mysteries of pharmacology that the natural mineral waters seem to be able to accomplish results that the best possible imitations of them do not affect. This mystery has attracted no little attention. Professor Liebreich in Berlin suggested that it was possible we did not as yet, notwithstanding all our presumed accuracy and completeness of analysis, know the definite composition of the ingredients of mineral waters. He pointed to the comparatively recent discovery of argon in the air as an example of the possibilities of analytic discovery that exist in even the most familiar substances. Dr. Loeb presents some suggestive thoughts that have a possible bearing on this subject. It was found that the eggs of certain minute marine creatures fail to develop if a single one of the ingredients in their native sea-water has been removed. It matters not which one of the ingredients is lacking the result is the same, while the eggs will nevertheless develop in distilled water. It is as if a certain equilibrium of chemical affinities or, as Professor Loeb prefers to call it, of ionization, existed in normal sea-water, which favored development of the eggs, while any disturbance of this equilibrium acted to inhibit such development. The application of this idea to the problem of the therapeutics of mineral waters is obvious.

Professor Loeb is prone to consider most of the metabolic processes carried on by the fluids of the body as really electrical in character. It is not so much the atoms of salts in solution that exert an influence upon tissues as the electrical charges the atoms bear and which act and react upon oppositely charged particles. These atoms bearing each an electrical charge are the ions of the newer physico-chemical physiology. In the now well-known phrase of Arrhenius, "It is the ions that act," and Professor Loeb's work has consisted mainly of the application of the ideas of Van t' Hoff, Arrhenius and Ostwald, especially of the latter, to physiology.

Under these circumstances it might have been expected that he would foresee a great future for electric therapeutics. On the contrary, his opinion is most pessimistic with regard to the possible benefits to be derived from any form of electrical treatment. In the oscillatory waves of electricity

of high potential introduced into medicine some years ago by D'Arsonval and that raised such high hopes because they seemed to be possessed of so much latent energy, Professor Loeb sees especially little to hope for. They actually produce no physiological effect because we are protected from them by our epidermis as by an impermeable screen. The X-rays alone seem to have some promise in them, although this is as much perhaps because of the accompanying light as of the electric radiations. For Professor Loeb sees a large future in light as a therapeutic agent. There is no form of living protaplasm that at some period of its existence is not very seriously affected by light and luminous radiations have a penetrating power and a dirigibility that make them very promising for future therapeusis.

There are certain points in which Professor Loeb differs completely from his colleague at Chicago, Professor Matthews. The latter asserts that cathelectrotonus may be due to the coagulation of material that takes place at the cathode when a muscle is stimulated. The facts, however, fail to justify any such conclusion. Coagulation is a slow process requiring enormous currents, comparatively speaking, to bring it about, while the phenomena of electrotonus and cathelectrotonus are rapidly developed and require but small currents. It is unfortunate that we are reminded in this connection of some of our friends, the newspapers, who print a rumor to-day and make a news item of its correction to-morrow. We are scarcely to expect such battledore with presumably scientific truths at a great university. On the whole Professor Loeb's review of the newer physiology founded on the recent physical chemistry, as the Germans call it, has proved not only interesting but eminently suggestive. More than this, however, can scarcely be said of it. Much of the present widely-gleaned information will have to be carefully winnowed before it will come into the garner as scientific truth. Many of the apparently suggestive practical hints will prove utterly fallacious. There is a justifiable pride, however, in thinking that this original work of the very highest order is being accomplished here in America, and it remains as a simple duty to see that it shall not be sensationally vulgarized before its true import is recognized.

QUACKS IN GERMANY.

According to recent Berlin police reports nowhere in the world have quacks and their nostrums more support than in Germany. While the city population of Germany has increased 58 per cent. and the regular medical men 76 per cent., the quacks have increased 1,537 per cent. Of 123 men who were found to practise medicine in Berlin without a license 30 had been domestics, 45 artisans, and 16 clerks. Only 24 had even a fair education. The women quacks were more numerous than men quacks. Of 130 found practising without a license only one was even fairly well educated. Sixty had been servant girls, 24 dressmakers, 10 charwomen and five nurses. The three men who made the largest incomes had been clerks; of the three most prosperous women two had been washerwomen and one a milliner. Thirty per cent. of the men and 15 per cent. of the women had been in jail.

Considering the quackish performances of men in high station and the appointment by Bismarck of antifat quacks to medical positions in the universities, this increase in German quackery is not surprising. Considering, also, the attempt by theologians to obtain control of medical institutions, insane hospitals, etc., popular tendency to quackery is naturally increased. Among a certain large proportion of the German agricultural population and the lower middle class, there is a strong tendency to mysticism and this always tends to the occult, of which the quack is a representative. Despite all the sacrifices of personal liberty which Germany has made to secure paternalism, it is obvious that regulation of quackery is as ineffectual there as in the United States.

ECHOES AND NEWS.

NEW YORK.

The Spitting Nuisance in New York.—The anti-spitting crusade has been very active within the past few weeks. Last week over fifty expectorators were arrested and of these thirty-two were each fined $5.00.

Eastern Medical Society.—The Eastern Medical Society of New York City held its annual dinner at the Broadway Central Hotel Saturday evening, March 22d. The attendance was the largest in the Society's history. After the dinner was served the following toasts were responded to: "Man and Mind," by Rev. Dr. G. Gottheil; "Our Specialties," by Dr. Emil Gruening; "Our Hospitals," by Dr. Arpad G. Gerster; "Our Sister Societies," by Dr. Parker Syms; "Our Own Society," by Dr. R. Abrahams.

Work of the Babies' Hospital.—The annual report of the Babies' Hospital for the past year shows that only $450.55 was paid for board of patients during that time. A training-school for nurse maids has been established in connection with the hospital. A six-months' course is necessary and after the maids have finished this they are kept under the observation of the hospital authorities; so competent nurses for young children may always be had there. The hospital has

treated in the eleven years since it was founded 32,000 patients. The new hospital now being built at Lexington Avenue and Fifty-fifth Street is to be a seven-story, fireproof building. There will be five wards, accommodating fifty patients, besides the nurses and officers. All the branches of the hospital will be located in this building.

Hospital Funds Distributed.—The Saturday and Sunday Association has this year collected nearly eighty thousand dollars. During the present week its committee has apportioned the major part of this amount among thirty-eight local hospitals on the basis of the free work done by each. The first six on the list are as follows: Montefiore Home, $6,600; St. Luke's Hospital, $6,038.05; Mt. Sinai Hospital, $5,351.55; Roosevelt Hospital, $4,346.31; German Hospital, $3,823.94; Ruptured & Crippled, $3,504.91.

PHILADELPHIA.

Smallpox and Typhoid Fever Abating.—For the week ending March 22d, there were reported thirty-five new cases of smallpox with three deaths and sixty new cases of typhoid fever with eleven deaths. This is the smallest number of deaths from these two diseases for any one week since 1900. There are now 219 cases of smallpox under treatment.

Charity Ball Receipts.—Each of the four beneficiaries will receive $2,850 as its share of the proceeds of the twenty-second annual Charity Ball held last month. The recipients this year are the children's wards of the University of Pennsylvania and Jefferson Medical College Hospitals, the Rush Hospital for Consumption and Allied Diseases, and St. Timothy's Memorial Hospital and House of Mercy, Roxborough.

Obituary.—Dr. Gerhard Loeling, who had practised in the northern section of the city for nearly thirty years, died suddenly of heart disease, March 23d, aged sixty-nine years. Dr. Loeling was born in Prussia, his father being an eminent surgeon of that country.—The body of Dr. Harry Whitesell, of Sewickley, was found March 23d, resting on a ledge of rock on the Ohio River bank, he having been killed by a fall, while making a night call on a patient.

Vacancy at Polyclinic Filled.—Dr. J. Alison Scott has been elected professor of clinical medicine and therapeutics in the Philadelphia Polyclinic to succeed Dr. S. Solis Cohen who resigned a short time since. Dr. Scott, who graduated from the University of Pennsylvania in 1889, is instructor in clinical medicine at the University and physician to the Pennsylvania Hospital and to the Church Home for Children.

Reception to Dr. Wyeth.—The Medical Club of Philadelphia will give a reception at the Hotel Bellevue on the evening of April 5th in honor of Dr. John A. Wyeth of New York City.

Training-School for Crippled Children.—Work is to be at once begun on the buildings of the Widener Memorial Training-School for Crippled Children at Logan. The plans provide for a three-story main, or administration building, 42 by 84 feet in size, with side wings 72 by 34 feet each. In addition to this will be an educational building, an industrial building, and two cottages, each 88 by 45 feet in size. The children will receive instruction in physical, manual, and mental training. Provision for medical and surgical treatment will be made by the inclusion of wards in the buildings. The donor, Mr. P. A. B. Widener, who erects the institution as a memorial to his wife, has stated it to be a home, hospital, and school for crippled children, where they can be cared for if helpless, receive such medical or surgical aid as shall be necessary and, in addition to a general education, receive instruction in such industrial pursuits as will assist them to become self-supporting. The entire cost of the institution, including endowments, will be about $2,000,000. Dr. De Forrest Willard will have general charge.

A New Operation for the Cure of Cystocele.—At the meeting of the Section on Gynecology of the College of Physicians, March 20th, Dr. Barton Cooke Hirst detailed a method of correcting cystocele, which he has been employing during the past few months. Dr. Hirst stated that repair of the anterior vaginal wall was much more difficult than that of the posterior wall or of the cervix. For the two latter there are well-recognized and satisfactory operations, but for the former there is no one method that will cure. There may be two elements entering into a tear of the anterior vaginal wall; (1) The wall is torn loose from the subjacent tissues, and (2) there is a tear of the transverse muscle which extends from the ischium to the pubis and which has an attachment to the anterior vaginal wall. This muscle is frequently torn and any operation which does not recognize this element is not a complete one. If the wall alone be united the muscular support is lacking. If the ends of the muscle alone be united there will still be a bagging of the other tissues. The operator must recognize both. In addition to denuding a central area Dr. Hirst displays the anterior vaginal sulcus of one side by means of three bullet forceps, the triangular area thus mapped out being also denuded. The opposite sulcus is then treated in like manner, although the tear is usually only on the left side. The denuded areas are then closed by sutures, the buried tier suture being preferred. The statement was made that time must elapse, probably ten years, before the real status of this operation could be determined from observation of the cases on whom it is being used. Dr. Hirst also stated that an anterior operation is needed in the great majority of cases in which the posterior is done, it being a false notion that the anterior vaginal wall is supported by the posterior.

CANADA.

A Canadian Honored in the Philippines.—A little over a year ago Dr. Harry J. Watson, a graduate of Trinity Medical College, 1896, who was then practising at Ottumwa, Iowa, was appointed to the United States Army Medical Service in the Philippines. He has just been appointed chief of the Medical Department of the largest Brigade Hospital in the Philippines. Considering the fact that there are over 475 doctors on the active service list in these Islands, Dr. Watson may be considered to have gained a high honor. It is understood also that Dr. Watson's superior officers have recommended him for a "majority" for distinguished service in the presence of the enemy.

Arts Degree for Medicals at Toronto University.—Arrangements have just been made by the Senate of Toronto University whereby candidates can secure a degree in arts in four years and then go on and secure a degree in medicine in an additional two years. The subject of anatomy will be introduced as an option in the third and fourth years in arts. In this way a student will be enabled at the end of his fourth year in arts to proceed directly to his third year in medicine.

Alleged Blackmailer Pleads Guilty.—A short time ago in Toronto a man endeavored to extort money from two physicians who had been called in to attend his wife and child, respectively. The case came up in the Sessions last week and the very slim defence put up by the defendant soon collapsed, when he pleaded guilty to the charge. Sentence will be pronounced next week.

Obituaries.—Dr. Theodule Bolduc, Montreal, an ex-house-surgeon of the Notre Dame Hospital, that city, died suddenly from heart disease on the afternoon of March 20th. The deceased was only twenty-six years of age, and had only recently commenced the practice of his profession.—Dr. A. Dixon Wagner, a prominent practitioner of Eastern Ontario, died at Cornwall on February 13th, at the age of fifty-three years. He was a graduate of McGill University.—The death of an old Toronto boy and a graduate of Trinity Medical College occurred at Seattle, Wash., on March 21st, of typhoid fever. Dr. F. H. Thompson was a son of a prominent citizen of Toronto and was one of the officers of the Coast and Geodetic Survey steamer "Patterson." He had spent the last two years in Alaska near Cape Nome and Sitka.

The Canadian Medical Association.—The next annual meeting of this Association will be held at Montreal on September 16, 17 and 18, 1902, under the presidency of Dr. F. J. Shepherd of that city. Dr. George Elliott, Toronto, is the general secretary. The Address in Medicine will be delivered by Professor Osler of Johns Hopkins and the Address in Surgery by Dr. John Stewart of Halifax, Nova Scotia. It is expected that there will be a very large attendance at the Montreal meeting.

The Ontario Medical Association.—This Association will hold its annual meeting in Toronto on June 4th and 5th under the presidency of Dr. N. A. Powell of that city, Dr. Harold C. Parsons of Toronto being the general secretary. Dr. John T. Fotheringham has been appointed chairman of the Committee on Papers and Business. It is understood that there will be several new and interesting features of the 1902 meeting.

The Southern Medical Association of Manitoba.—This Association, which has only lately been formed, met at Brandon on February 26th, over sixty of the leading physicians of the Province being present. President McConnell of Morden occupied the chair, while Dr. J. T. Lamont of Treherne, who has been greatly instrumental in organizing the Association, acted as secretary. The following papers were contributed: "Necessity of Organization in the Medical Profession," by Dr. J. T. Lamont; "The Ethics of the Profession," by Dr. H. P. Elliot, Morden; "Differential Diagnosis of Smallpox," by Dr. James Patterso, Dominion Health Inspector; "Quarantine in Smallpox," by Dr. Macdonald, Brandon; "Christian Science," by Dr. J. R. Jones, Winnipeg; "Gall Stones," by Dr. H. H. Chown, Winnipeg, past-President of the Canadian Medical Association; "Delayed Union and Non-Union of Fractures," by Dr. John Hardie, Morden. In the evening the profession of Brandon tendered the visiting members a banquet. The following officers were elected for the ensuing year: President, Dr. L. M. More, Brandon; Secretary, Dr. Little, Alexander; Executive Council, Dr. Poole, Neepawa, Dr. Goodwin Elkhorn, Dr. Thompson, Douglas; Drs. Macdonald and McDiarmid, Brandon.

GENERAL.

Mosquitoes and Malaria.—The military authorities in Formosa, says the Tokio correspondent of "The (London) Times" are experimenting extensively in order to determine the influence of mosquitoes on malaria. A battalion of soldiers was completely protected from mosquitoes for 161 days during the malarial season. It entirely escaped the disease. An unprotected battalion at the same place had 259 cases of malaria.

American Association of Pathologists and Bacteriologists.—This new society holds its second annual meeting this week at Cleveland. The program is a very interesting one and a full report will appear in the Medical News.

Tri-State Medical Society of Iowa, Illinois and Missouri.—The tenth annual meeting of this society will be held at Chicago on April 3d and 4th, under the presidency of Dr. John C. Murphy of St. Louis. Dr. William B. La Force, Ottumwa, Iowa, is the secretary, and Dr. Emil Ries, Chicago, chairman of the Committee on Arrangements. An interesting program is announced. An abstract of the proceedings will appear in the Medical News.

Death of the Sultan's Physician.—News is received of the death of the Sultan's chief physician, Mavrogeni Pacha, at Constantinople. Born in 1817 of a noble Greek family, he received his medical education in Vienna, and upon his return to his native country soon became one of its most prominent physicians. He was a professor in the Imperial School of Medicine and the author of several scientific works. One of his sons was at one time minister from Turkey at Washington.

An Oculist-Prince.—Duke Carlo Theodore of Bavaria, who is a physician by profession and a specialist in diseases of the eye, a short time since performed his four thousandth operation for cataract.

Cholera in Manila.—The outbreak of cholera does not create alarm. No white person has been stricken with the disease. According to the report, there have been forty-nine cases and thirty-nine deaths. Experts have gone to investigate the five cases at Malolos, just north of Manila, and the two cases at Aparri in Northern Luzon.

Bubonic Plague in California.—At Berkeley just outside of San Francisco a case of plague has been reported.

Summer Session of Medical Department.—The summer session for 1902 of the Medical Department of the University of Michigan will extend from Monday, June 23d, to Friday, August 8th. The courses offered are classified as *special*, designed for graduates and advanced students, for which no credit will be given, and *credit* courses, which duplicate certain portions of the regular curriculum, and on the satisfactory completion of which, credit will be given. No allowance for time will, however, be given for work done in the summer school; a student cannot, therefore, shorten his residence in college by attending one or more summer sessions. In the laboratory and demonstration courses offered, opportunity will be given the student to do the work for himself, under the personal direction of the instructor. He may thus familiarize himself with the apparatus and instruments used in laboratories and in diagnostic work, and become conversant with their uses. The abundant clinical material of the University hospitals will be at the disposal of the instructors offering special clinical courses and will be freely used for diagnostic work, beside instruction and general clinics.

St. Louis Medical Society of Missouri.—At the meeting held March 22, 1902, Dr. Hugo Ehrenfest read a paper on "Conservatism in the Treatment of Inflammatory Affections of the Uterine Adnexa." The program for next week is as follows: "The Operative Treatment of Prostatic Obstruction," by Dr. Bransford Lewis; "The Application of the Cautery by a New Method for the Reduction of Prostatic Obstruction," by Dr. Wm. N. Wishard, of Indianapolis; "Some Phases of Prostatic Surgery," by Dr. J. P. Bryson, and "Perineal Prostatectomy from the Standpoint of the General Surgeon," by Dr. G. W. Broome.

Vanderbilt Hospital Ward.—Everything is now ready to begin work on the Vanderbilt ward of the Newport Hospital, which Mrs. Cornelius Vanderbilt is

to erect as a memorial to her deceased husband. This building, which is to be constructed of limestone similar to that used in "The Breakers," is to be 125 feet long, 40 feet wide at either end and 50 feet wide in the center. It is to be three stories high. The first floor will be for the treatment of out-patients, the second and third floors will be arranged in rooms, with a children's ward on the third floor.

Pure-Food Bill Favored.—The House Committee on Interstate and Foreign Commerce March 24th voted to report the Hepburn Pure-Food Bill, so called, to prevent the adulteration, misbranding, and imitation of foods, beverages, candies, drugs, condiments, etc., and regulating interstate traffic in such goods. The bill was framed by the National Pure-Food Congress, and for some time hearings have been in progress on this and other pure-food measures. To-day the vote was taken, and was practically unanimous for reporting the Hepburn bill.

Obituary.—Dr. John E. Richardson, a prominent Brooklyn physician, died this week at his home, 127 South Oxford Street, of cancer of the neck. He had been undergoing treatment for several months under the direction of Dr. H. B. Delatour, who had used the X-ray. Dr. Richardson was born fifty-one years ago at Albany, and was the son of "Deacon" William Richardson, former President of the Atlantic Avenue Railroad Company. Dr. Richardson received his early education at the Brooklyn Polytechnic Institute and began work as receiving teller in the Broadway Bank. Later he took up the study of medicine, graduated from the College of Physicians and Surgeons in 1877 and spent several years at Vienna and Berlin. He later became an interne of the Brooklyn Hospital. For a number of years he was the chief surgeon of the Long Island Railroad, of the Atlantic Avenue Railroad and of the Brooklyn police. He was a member of the Oxford, Riding and Driving and Crescent Athletic Clubs of Brooklyn. He was a trustee of the Emmanuel Baptist Church.—Dr. George W. Cushing died on Thursday, March 20th, after a brief illness at his home, No. 221 Schermerhorn Street, Brooklyn. He was born in Canada fifty-three years ago, and came to Brooklyn when a boy. He was graduated from the Long Island College Hospital in 1874, and had practised medicine at the Schermerhorn Street address ever since. He was a member of the Kings County Medical Society, the New York State Medical Society and Long Island Council, Royal Arcanum. His wife, whom he married in 1870, died about three years ago. He leaves a son and daughter.

OBITUARY.

W. W. Johnston, M.D.

By the untimely death of Dr. Johnston the District of Columbia has lost its most prominent physician and the profession at large a valued and much honored member.

Dr. Johnston, son of the well-known Dr. George Johnston, of Washington, was born December 28, 1843. He received his education in private schools and in the college of St. John's, Maryland. He graduated from the medical department of the University of Pennsylvania in the year 1865, and spent a year studying at the University of Edinburgh and in Paris. One of his recent papers is a well-merited tribute to his old master, John Hughes Bennett. He also spent some time in the hospitals of New York. Returning to Washington he began practice with his father and soon was recognized as an industrious and energetic student. In 1871 he joined the Faculty of the Columbian University, in which for nearly twenty years he has occupied the chair of medicine. By devotion to both the scientific and practical aspects of his work he became recognized as one of the foremost clinicians of the South, and to a large and important general medical practice he added the cares and responsibilities of a consultant. He inherited the most select practice in the District, and most of the prominent politicians of the community have come under his care. He was an active member of the Association of American Physicians and the Treasurer of the society until two years ago. To its Transactions he contributed some of his most important papers, particularly those on "Typhoid Fever and Malaria" and on the "Geographical Distribution of Typhoid Fever in the United States." Dr. Johnston was one of the best students of dysentery in the country, on which subject he contributed many important articles, the last a complete and fully up-to-date paper in the new edition of Wood's Reference Handbook of the Medical Sciences.

As a teacher he was thorough, painstaking, clear and concise, and was always interested in the welfare of his students.

As a practitioner Dr. Johnston had the faculty of imparting confidence to an unusual degree. He had a calm manner, a quiet but firm voice and a gentleness and tenderness which soon made him beloved by his patients. A careful diagnostician, sparing no pains to ferret out the details of an obscure case, he was, in addition, a skilful therapeutist, not believing in many drugs (as was natural in a student of Hughes Bennett), but displaying a full mastery over the important ones. The demands of teaching and of a most exacting practice were met with unflagging energy, and throughout the past winter he was able to accomplish an extraordinary amount of work. About two weeks before his death he had an attack of severe substernal pain, with great prostration. He recovered sufficiently to go to Atlantic City, where he had a second severe attack, in the convalescence from which he died suddenly.

Dr. Johnston will be missed by a large circle of friends in the profession, particularly at the Washington meetings of the special societies and of the Congress, in the arrangements for which he always took an active interest.

We are glad to learn that he leaves a son in the profession, Dr. W. B. Johnston (at present one of the assistants of Professor Osler), in whom we hope the profession may find a worthy successor to his father and grandfather.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, March 8, 1902.

THE SMALLPOX EPIDEMIC; WILL IT SPOIL THE CORONATION PAGEANT? THE JENNER FAMILY.

The visitation of smallpox which began last summer is slowly but steadily gaining ground in London. The epidemiologists tell us that a considerable outbreak is now due. The disease, where not prevented, as in Germany, by efficient vaccination, shows a prevalence curve which attains its height every thirty-three years or thereabouts. Our last visitation was in 1871. This one has again found us ill-prepared; the Antivaccination League has pursued its mischievous propaganda all over the country and the medical profession, secure in its own belief, has not taken the trouble to carry on a counter-campaign. The Royal Commission on Vac-

cination which reported some half a dozen years ago recommended that compulsory vaccination should be abolished; in doing so it only formally recognized the fact that, although vaccination was *de jure* compulsory, it was not in many parts of the country *de facto* "compelled." John Bull, as was said by some one who knew him well, dearly prizes the privilege of going to the devil in his own way, and accordingly he resented the idea of compulsion. When defaulters were dealt with by the legal authorities, they were treated by their brother fanatics as martyrs to the blessed truth that vaccination is an unclean thing; their fines were paid for them, and when they came out of prison they were met by a rabble of sympathizers with bands and banners. The new Act stopped all this, but it created a strange being called the "conscientious objector" who is suffered to allow his offspring to go unvaccinated if he gets a certificate of exemption from a magistrate. This ceremony involves a trifling amount of trouble as the applicant has to appear in person and has besides to pay a shilling for the document. These conditions, though they can scarcely be called onerous, have proved sufficient to damp a good deal of cheap enthusiasm, and there has been a marked increase in the amount of vaccination in the last two years. London, however, is still very imperfectly protected, and in the parish of St. Pancras where the present epidemic broke out it is estimated that about a third of the rising generation had escaped what Dr. Job Collins, a member of the London County Council and one of our antivaccination heresiarchs, calls the "Jennerian rite." The health authorities have displayed great energy in persuading people to submit to the "rite," and for many weeks every other person one met in the street wore a red band on his left arm as a warning to the casual passerby not to rub against him. There has, however, been a good deal of carelessness in other matters. A week or two ago the attention of the President of the Local Government Board was called in Parliament to the fact that a patient in one of the hospital ships for smallpox cases had been visited by his mother and sister, the former of whom was shortly afterward herself admitted as a patient. The President stated in reply that every precaution was taken by the officials of the Metropolitan Asylums Board under whose control the hospital ships are to minimize the risk of infection being spread by persons visiting patients. He said the visitors on their arrival are invited to partake of a light meal in order that they may be physically better able to resist infection. They are then seen by a medical officer, who inquires into their condition as to vaccination, and, if necessary, urges on them the advisability of immediate revaccination. Before entering the wards the visitors are dressed in overalls and caps, and while in the wards they are on no account allowed to touch or in any way handle their relatives or the beds on which patients are lying. After a brief stay in the wards—some minutes only—the visitors are taken to a dressing-room where the overalls and caps are removed, and they themselves undergo a thorough washing of the hands and face before leaving the hospital premises. The fact of every visit is communicated by letter to the medical officer of health in whose district the visitor resides, whether that visitor has been recently revaccinated or otherwise. In the case referred to in the question the two visitors refused to be revaccinated at the time of their visit to the ships. Notwithstanding this official statement it is whispered that the authorities of the smallpox hospitals have been extraordinarily lax in admitting visitors. I am informed that at least seventy persons who have been allowed to visit friends in the hospitals have returned as patients during the last two or three months. This laxity is all the more remarkable as the general hospitals have been very strict in forbidding the admission of visitors.

The epidemiologists say that the epidemic will not reach its highest point till May and June. This raises an interesting question as to the Coronation of King Edward the Seventh which is fixed for the end of June. The pageant is certain to attract enormous crowds of people who will be packed in dense masses in the streets and windows, perhaps even on the chimney tops to which, according to Mark Antony, the Roman people climbed "to see great Cæsar pass." We hear that a trifle of 20,000 Americans are expected to grace the festival. But there is an ominous rumor abroad that it is quite possible that there will be no processions at all in connection with the Coronation. The King is said to be unwilling to be the cause of possible danger to his lieges by gathering together a vast concourse of people when the germs of smallpox are borne about in countless numbers "horsed on the sightless couriers of the air." The Coronation will not, however, be put off, and it is difficult to see how the King is to get to Westminster Abbey where the ceremony of making him "the Lord's Anointed" is to be carried out—unless he goes there in a cab in disguise.

In connection with vaccination it may be mentioned that Mr. Victor Plarr, Librarian of the Royal College of Surgeons of England, has recently unearthed some information as to the fate of the descendants of Edward Jenner, the discoverer of vaccination. He himself died wealthy, and his son Colonel Jenner inherited his wealth. But his nephews were less fortunate, for in 1840 a petition was presented to the House of Commons on behalf of Henry Jenner, Doctor of Medicine, and the Reverend George Charles Jenner, Clerk in Holy Orders, setting forth that the petitioners were the nephews of Dr. Edward Jenner; that they were of the respective ages of seventy-three and seventy-one years; that they both very materially assisted Doctor Edward Jenner in the investigation and practice of vaccination; and they expended nearly the whole of their property in promoting the object of Doctor Jenner's discovery; that Doctor Jenner would have been a much richer man if he had kept vaccination secret, and not divulged the practice of it for the benefit of mankind; that Doctor Jenner, by his will left Dr. Henry Jenner only an annuity of twenty-six guineas, and the Reverend George Charles Jenner a legacy of twenty pounds; "that under these circumstances your Petitioners humbly submit to the consideration of your honorable House their case, trusting that their services and for the sake of the memory of a man who conferred the greatest benefit upon the human race, that under Divine Providence was ever conferred upon it will not be passed over." Of the two nephews Jenner seems to have preferred George, the clergyman, who had in the first instance been educated for the medical profession. He and his brother Henry went as apostles of vaccination to Ireland. Things did not go well with Henry, for in 1839 he wrote, "I have sacrificed my health in and a vast deal of my time with anxiety, attention and exertion in the cause of vaccination, with much of my pecuniary resources and lessening my professional practice, indeed to such a degree as to induce my receding to a more humble station in society." Nothing seems to have come of the appeal to the generosity of Parliament. Henry died in 1851, at the age of eighty-four, at Berkley, where his famous uncle had practised; the date of his brother's death is unknown. In 1843 a son of his, Doctor William Henry Jenner, applied for the post of Inspector of Vaccinators at the National Vaccine Institution, but it was given to another. William

Henry died in 1850 and in 1860 his widow was for the third time a candidate for a pension from the Royal Medical Benevolent Fund. One hopes that she was successful; it is hardly conceivable how such claims as hers can have been passed over.

OUR BERLIN LETTER.

Berlin, March 15, 1902.

ETIOLOGY OF CANCER—SCHÜLLER AND HIS NEW PARASITE OF SYPHILIS—HEALTH OF DR. VIRCHOW—DEATH OF PROF. WOLFF—BISMARCK'S PHYSICIAN IN WARFARE.

The question of the etiology of cancer is at present a very burning one, as the newest statistics prove a decided increase of the malady for all civilized countries. In England, for instance, of one million inhabitants in the decades 1861-70, 3,840, in 1871-80, 4,680, and in 1881-90, 5,890 people died from this disease. In the Netherlands in 1874, there were 490 deaths, and in 1897, 910 deaths from cancer for each million of inhabitants. For Switzerland the ratio is 1,324, and in New York the number of cancer deaths in 1888 was 2,473, in 1897 4,117.

Your readers probably remember that it was claimed by Prof. Czerny of Heidelberg that the parasites of Schüller were in reality cork cells, to which statements the latter replied in the "Deutsche medicinische Wochenschrift" (No. 36, 1901), that the conclusion of Czerny was entirely erroneous, as he, Schüller, had his culture tubes closed exclusively with rubber or glass stoppers and that all fluids used by him had been previously filtered. True, the capsules which contained the parasites had some resemblance to cork cells, but this he had mentioned already in his book. However, he has told your correspondent that since this utterance from Heidelberg he had taken special precautions to avoid the use of cork and could nevertheless find the same organisms in all his examinations, sometimes capsules filled with young parasites, sometimes empty capsules, and again non-encapsulated parasites. Rost, a pupil of Koch, has propagated the same parasite for the first time. Schüller himself observed contractile movements of the live organisms, as well as their typical reaction against heat and alcohol, and he said he could follow all phases of development of the young organisms in trial animals injected with his cultures. Schüller desired very much the help of the Government to facilitate his researches, inasmuch as he, though an eminent surgeon, is not rich; but he is not favored by the powers that be and he must "paddle his own canoe" and also defend himself against the skepticisms of his confrères. He has also discovered a parasite of syphilis, of which your correspondent has seen some specimens. He will soon publish his new discovery, which he claims can be demonstrated not alone in primary infections, but in luetic cases of long standing and in hereditary syphilis.

The health of Prof. R. Virchow is physically all that could be expected after such a painful accident in a man of his age; mentally, he is not the same, it is said. His memory is defective and it is very doubtful if he will ever be able to resume his old position at the University.

In the death of Prof. J. Wolff, popularly called "the Bone Wolff," the Berlin University has lost a very good man. It was his individual work to prove that the arrangement in the formation of the bones represents the static laws. He also was the first to close the defects of harelip and cleft palate. He died of cerebral thrombus, after an illness of only two days.

A stage of open war, which is rather unique, exists between the physicians attached formerly to the County Hospital at Gross Lichterfelde, a suburb of Berlin, and the managing physician, Prof. Schweninger, formerly the court physician of Prince Otto von Bismarck. He seems to have some peculiar notions in regard to medical affairs, which are not relished by the other physicians. For instance, he does not believe in the value of statistics, does not permit the use of diphtheria serum in diphtheria cases, looks extremely doubtful at the operation of tracheotomy and does not favor the practice of surgery in general. The institute is presently without a surgeon, the former incumbent was Prof. Schleich, of anesthesia fame. Thus far the Government has upheld Prof. Schweninger, but the county representatives refuse to contribute any money until the affair is settled.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held March 6, 1902.

The President, Robert F. Weir, M.D., in the Chair.

The scientific business of the evening consisted of a meeting of the Surgical Section before the Academy. The use of the X-rays in the treatment of malignant disease was the subject discussed. The paper of the evening was read by Dr. Francis H. Williams of Boston.

X-Rays in Medicine.—Dr. Williams said that in discussing the question of the therapeutic effect of the X-rays one must not lose sight of the place that Roentgen's discovery has already made for itself in the domain of medicine. In certain branches of diagnosis, the X-rays now represent one of the most conclusive and most useful methods of obtaining accurate information. Without them the diagnosis of fractures would lose not a little of its present-day certainty. In thoracic disease data have been given for the accurate recognition of degenerative lesions. In tuberculosis, in aneurism, in the matter of intrathoracic growths and, generally, in the usually obscure diagnostic field of thoracic work, the X-rays have proved a veritable touchstone for the eliciting of truth.

Technic of X-Rays.—With regard to the therapeutic effects of X-rays the question of the method of producing the rays is of the first importance. It used to be said that the X-rays as obtained from a static machine were not effective therapeutically, and that it was necessary for remedial action to produce them by means of a Ruhmkorff coil. Further observation has shown, however, that X-rays obtained through either source are of about equal therapeutic value in their effect if other conditions are properly arranged. Dr. Williams uses a static machine for the production of the X-rays in hospital work, and a coil at his office. The static machine consists of eight plates six feet in diameter. Much more important than the source of the electrical energy is the matter of choice of the tube to be employed. In low-resistance tubes many of the rays are absorbed but they are not in the high resistance tubes. These latter should be used for tumors situated deeply in the tissues and the former for superficial growths.

Application to Patient.—A perforated diaphragm of lead should be so used that the rays produce their effect upon the tissues only a little beyond the diseased area. Pure tin is more agreeable and easier to handle than lead and is often employed for this purpose. As the seance must continue at times for as long as twenty minutes, the first care should be that the patient shall be in a comfortable position. Dr. Williams has found it important to enclose the tube within a box in order to protect the operator and others who may be in close proximity, as well as other parts of the patient himself, from the effect of the rays. If the inside of the box be

well coated with white lead it will very well serve its purpose of preventing the action of the rays.

Length of Exposure.—At first the exposure of the part to the rays should not extend beyond five, or at most ten minutes, so as to enable the operator to recognize how much effect is being produced and to forestall any possible idiosyncrasy as regards oversensitiveness of the patient to the rays. The exposure should be made two or three times a week. In tumors that are of slow growth very little result will be noticed from such short exposures, and they will have to be submitted to the rays for twenty minutes or even longer; in rapidly-growing tumors an exposure of five minutes may prove too long. The operator must be careful that the X-rays do not act as a stimulant as the knife does in some cases of rapidly-growing tumors, causing an efflorescence of malignant energy. The first sensation from the application of the rays is usually a sense of itching, prickling or a drawing feeling in the skin. This may usually be considered a favorable sign. In epithelial growths it must be remembered that the effect of the rays is to cause a breaking-down of the malignant tissue overgrowth, though healthy tissues in the neighborhood should not be affected.

Treatment of Rodent Ulcer.—Rodent ulcers are much slower to react to the action of the X-rays than is almost any other form of malignant growth, though the ultimate results are not unfavorable. As a rule, this form of growth is also more obstinate to treatment. As healing of the edges of the ulcer occurs, the opening in the tin or lead diaphragm should be made smaller so as to prevent the action of the rays upon the recently-healed tissues. In this way the ulcer can gradually be brought to complete healing. When glands are affected, these should also be exposed to the action of the rays, and, in general, the X-rays should be directed over the parts to which the lymphatic canals of the tissues lead.

Possibilities of Injury.—It has sometimes been the custom to allow a non-medical man to apply the X-rays. As a rule, such men are only mechanics who understand the production of the X-rays, but nothing about their therapeutic effects. Only imperfect success may be looked for under such circumstances and there are many possibilities of harm being done. Rawlins showed that guinea-pigs may be killed by frequent exposure to the X-rays, even though no external lesion becomes visible. Control guinea-pigs, kept for some time under the same circumstances as the others, but without exposure to the X-rays, were living and well when their companions died. Notwithstanding this, there is little danger of serious results in careful application. The experience of the Boston City Hospital, where thousands of exposures have been made without a single burn, suffices to prove this.

Results of Treatment.—In most of the cases of malignant growth treated by Dr. Williams, microscopical examinations confirmed the clinical diagnosis. So far no malignant superficial growth has failed to yield to the X-rays. This same favorable result has been obtained also in a chronic inflammatory lesion, wrongly suspected of being an epithelioma, and even in a localized nodule of tuberculosis. Rapidly-growing malignant neoplasms are very quickly affected. Slowly-growing neoplasms take longer to be affected. The site of the growth is the most important consideration for prognosis. Epitheliomata upon the face, upon the hand, upon the breast, and upon the tongue have been cured. Thus far every malignant growth, even though not ultimately cured, has been benefited by the treatment. The earlier the cases come for treatment the better is the prognosis.

Inoperable Advanced Cases.—In these cases the patients can always be promised great relief from the painful symptoms. Dr. Williams has had a case of rodent ulcer that had been operated upon five times, until finally operation became impracticable. Exposures to the Roentgen rays then became a renewed source of hope and consolation, besides greatly adding to the material comfort of the patient. There can be no hesitation in using the Roentgen rays when these are the only hope. For milder cases, however, the conscientious medical man will sometimes hesitate as to whether the knife should not be used. Dr. Williams' own conclusion in the matter is that it takes but a very short time to demonstrate whether or not the Roentgen rays are liable to be of benefit. In two weeks at the most, especially in cases of epithelioma, it will be very plain if there is to be failure of therapeutic effect. Then the surgeon can be called without the delay having added anything to the seriousness of the case. There is no doubt that at times after operation, as a result of the irritation of the tissues and the stimulus of the reparative process that ensues, a malignant neoplasm is stirred into great activity. Hence the advisability of applying the Roentgen rays first in order to test their therapeutic effect, and the knife only later. This seems to be the part of true conservatism.

Illustrative Cases.—Dr. Williams exhibited stereoscopic pictures of various patients who had been benefited by treatment. In one case, that of an old woman, an epithelioma began to improve after the second treatment. In some cases epitheliomata cured by exposure to the Roentgen rays have remained healed for over a year with no signs of recurrence. In only one case in Dr. Williams' experience has there been a recurrence; in this the patient suffering from an epitheliomatous ulcer received a series of treatments, and then, owing to circumstances, and the occurrence of so much improvement that there was no longer any discomfort associated with the growth, nor any tendency to advance, he ceased taking the treatment. The ulcerative lesion continued its favorable progress and healed completely without further treatment. Some six months afterward, however, the cutaneous tissues again broke down and treatment was carefully kept up until the spot was entirely healed. Since then there has been no sign of recurrence. Some cases of carcinoma of the tongue have improved greatly as the result of exposure to the Roentgen rays, but there has been inevitable recurrence in all these cases. The tissues of the tongue are so succulent that the carcinomata seem to acquire a very firm hold. One reason for the failure was that the cases were, as a rule, far advanced when brought for treatment. For favorable prognosis of treatment with the Roentgen rays, an early stage is important. Now, however, that patients know that they may be treated without recourse to the knife, it is probable that many cases will come much earlier than before when fear of the knife was all that kept them from consulting a physician. The earlier cases of cancer of the breast come for treatment by the X-rays, the more hopeful is the prospect. The nodular form of carcinoma is more easy to affect favorably than scirrhous cancer. It is wonderful to note how the hard breast, firmly fixed to the chest-wall, softens and becomes movable as the result of a few exposures to the Roentgen rays. Carcinomatous nodules in the glands shrivel up and disappear under their influence. The nodules of recurrent carcinoma occurring in the cicatrices of operation for the removal of carcinomatous breasts are especially amenable to treatment by the X-rays. Many of these discouraging cases will undoubtedly be cured by early applications of the X-rays, and this addition to one's armamentarium will help out surgical procedures. Dr. Williams exhibited the picture of a boy, six years

of age, who suffered from spindle-celled sarcoma of the elbow. Amputation was done in the upper third, but it was not long before symptoms of recurrence occurred. Sarcomatous nodules appeared in the scar, but under the influence of the X-rays the cicatrix has lost its redness and prominence, and, instead of the hard ridge that formerly marked the scar, there is no induration to be felt except in the central nodule of the scar.

Unfavorable Cases.—Dr. Williams described certain cases in which the X-rays gave relief from symptoms, but failed to produce a cure. One of these was a cancer of the neck which had been removed by operation and had recurred. As the result of the breaking-down of malignant tissue there was a large ulcer in the cervical region. After exposure to the X-rays there were distinct external improvement, less swelling in the cervical region, and much less ulceration. The internal discomfort, however, continued and even became more marked. It is evident that the internal portion of the cancer continued to spread and invade important tissues within the neck. In another case, rather similar, the cancer grew just below the ear; this too, after recurrence, was considerably improved by the X-rays, but difficulty of swallowing set in and continued to increase in spite of the X-ray treatment. It is only a question of time until these patients reach the fatal termination of their malignant disease. In these inoperable and hopeless cases, the feature of the X-ray treatment is relief of pain. Sometimes pain is so severe that even large amounts of morphine fail to relieve it. The first effect of the X-rays is a sense of comfort, which lasts, as a rule, for twenty-four hours, and enables the patient to sleep and even to eat much more heartily than would otherwise be the case. In recurrent carcinomata, even when there is not the slightest hope of ultimate cure by the X-rays, because of internal metastases, their therapeutic effect in producing relief from pain must be tried. Suggestion, of course, has something to do with the relief of pain in these cases, because the formidable apparatus employed has its due effect upon the minds of patients. There is no doubt, however, that relief of pain may be secured in individuals who are ordinarily unaffected by suggestion. Relief occurs even in patients who know nothing of the fact that the most promising part of the X-ray treatment is its amelioration of pain.

Hodgkins' Disease.—Dr. Williams exhibited a picture of a patient suffering from Hodgkins' disease, in whom there was a very marked difference in the size of the cervical regions on the two sides. Before the employment of the X-rays the cervical glands had been about equally affected, and now there is a very striking difference. All of the glands on one side of the body were exposed to the rays and all decreased: those on the other side were not exposed and remained absolutely unchanged. There was also a decrease in the size of the spleen as the result of the employment of X-rays.

Conclusions.—Dr. Williams said, in conclusion, that X-rays undoubtedly do good in cancer. Besides, they arouse no dread, hence patients will come for much earlier treatment than otherwise. There is no shock from their use, their employment is absolutely painless and the cosmetic results are better than from any other method of treatment. With regard to recurrence, one cannot as yet be sure. The X-rays, however, in this regard, certainly promise very well, and if there should be signs of recurrence one can promptly resume the treatment. With regard to internal cancers, the medical man is not justified in promising relief by the use of the X-rays; their employment may lessen discomfort, however, and all external cancers yield absolutely to them. Inoperable cancers will become much more rare, because in very early stages malignant growths will be submitted to the X-rays.

Quality of X-Rays.—In discussing Dr. Williams' paper, Dr. William J. Morton said that there are two forms of X-ray tubes, those of low and those of high vacuum. High-vacuum tubes give a lack of definition in radiographs that indicates their diffusion through the tissues and a certain absorption of the energy. This is undoubtedly the best form of tube to use for therapeutic purposes. The low-vacuum tubes that give the best radiographs are not so effective. Dr. Morton said that his experience justifies him in believing that the X-rays are sure to be of service in many forms of cancer. Dr. Morton's clinical experiences will be found in the report of the Harvard Medical Society proceedings, soon to be published in the Medical News.

Relief in Inoperable Cases.—Dr. A. B. Johnson said that he has had some encouraging results with the X-rays, especially in the recurrence of cancer after operation upon the female breast. This favorable experience also extends to a case of recurrence of carcinoma of the jaw with ulceration into the mouth. He believes that the tubes of large potential electrical energies should be employed and that they should be artificially cooled by means of a water reservoir. He detailed these cases and showed the extremely favorable results, though as yet no absolute cure has been obtained. In one case in which there was a very deep ulcer, the edges of which bled very easily, after two exposures the tendency to bleeding ceased entirely; after four exposures, healthy granulation tissue began to fill up the ulcerated space and it healed like a healthy granulating ulcer. As a rule, in his experience, relief from pain is a very marked feature. The night after an exposure to the X-rays, patients, who had previously been very uncomfortable, rest very quietly. Undoubtedly, with larger apparatus, the X-ray operator will be able to treat carcinomata in deeper tissues than at present.

Unsatisfactory for Rapidly-Growing Tumors.—Dr. William B. Coley reported a series of six cases of sarcoma on which the X-rays had been used at the General Memorial Hospital. One case was that of a rapidly-growing tumor of the right parotid region; it proved to be of extremely malignant character and recurred very shortly after operation. Dr. Coley then tied the external carotid artery and employed the mixed toxins for its treatment. Neither the ligation of the artery nor injection of the toxins had the slightest effect in preventing the growth of the tumor. Eight treatments with the X-rays also produced no effect. The second case was a rapidly-growing sarcoma of the upper jaw. This involved so much tissue when seen that surgical procedures seemed out of the question and the toxins were used without effect. The tumor was then exposed to the X-rays on eleven successive days, but without any improvement. In another case of carcinoma eight treatments with the X-rays had but very slight effect in limiting the growth of the tumor at first, and then ceased entirely to produce any effect.

Slower Sarcomata.—In one case of not very rapidly-growing sarcoma of the femur the tumor has been reduced somewhat in size and the patient is more comfortable. In case of inoperable tumor of the neck which was treated by the mixed toxins, but subsequently recurred, great improvement resulted from the use of X-rays. Not only was the patient made more comfortable, but the tumor was reduced in size and there is even the promise of an ultimate good result. In another patient, operated upon sixteen years ago at the New York Hospital, the tumor was found on pathological examination to be of the round-cell variety. Three

operations were done during the next three years. The first tumor did not seem to have any capsule; later tumors were capsulated. A tumor the size of the first finally developed, was treated with the X-rays and has practically entirely healed.

Epithelioma after Lupus.—Dr. Charles W. Allen presented a patient who, after having suffered from lupus for twenty-four years, developed an epithelio-matous nodule in the midst of a lupus scar. This was treated by means of the X-rays and has improved so much that an ultimate cure seems assured. Dr. Allen, contrary to the experience of Dr. Williams, has found that a rodent ulcer yields without much difficulty to the X-rays. In a recent case, in which a cancerous mass pushed itself out from the surface of the cheek in front of the globe of the eye, after one exposure the mass began to slough away, while its base softened and shriveled up. The pain after the application of the X-ray was cured without suggestion.

Long-standing Carcinoma and Erythematous Lupus.—Dr. Percy Turnure presented a patient who suffered from an injury of the cheek thirty-five years ago which had never completely healed. Six or seven years ago malignant degeneration of the ulcer set in, and about five years ago it began to involve the eyeball; the glands of the neck became involved and the cancer seemed inoperable. The use of the X-rays has produced a profuse discharge and has added greatly to the comfort of the patient. The case, however, seems almost too far gone to present a favorable prospect of cure. Glands that are affected by malignant processes seem to disappear rather easily under the use of the X-rays. Dr. Turnure has come to the conclusion that most of these glands are enlarged not really because of cancerous degeneration, but because of the suppurative process that goes on in breaking down malignant growths. Dr. Turnure has recently had a case of erythematous lupus of very long standing which has been greatly benefited by the X-rays. The patient was exhibited and showed a distinct difference between the parts that have undergone exposure to the X-rays and those which have been left unexposed.

Recurrent Carcinomatous Nodules.—Dr. Hopkins of Brooklyn said that it is in recurrences of cancer after operation that the X-rays are especially valuable. He has recently had under observation a case in which seven nodules, some of them ulcerating, occurred in the scar after operation for removal of the breast. Five of these have already disappeared as the result of exposure to the X-rays and others are disappearing. This improvement in the pathological condition has taken place notwithstanding the fact that the patient is pregnant, and the pregnancy has not been interrupted. It is surely a wonderful power for good that can prevent the stimulus of pregnancy from influencing unfavorably a malignant tumor in the breast. In another case under Dr. Hopkins' care a sausage-like scar, evidently due to cancerous recurrence after amputation of the breast, is rapidly disappearing. A malignant tumor of the tongue that had increased the size of the organ to such an extent as to prevent absolutely the taking of all nourishment, so that the patient had to be nourished by the rectum, was caused to ulcerate by exposure to the X-rays, and the tumor has decreased so much that, whereas a teaspoonful of water could not be taken before, the patient is now able to eat steak and other nutritious substances, has gained in weight and has taken on a sense of well-being that had been absent for a long time.

Lessened Chance of Burns.—Dr. Williams, in closing the discussion, said that, in his experience, when the screen is employed there is much less chance of burning the patient. It is possible to produce a brush burn with electricity when the X-rays are not employed at all. Dr. Williams confesses that patients are not absolutely protected from all danger of burns even by the screen, though there is undoubtedly much less risk. As burns are the one serious drawback to the use of the X-rays, it is worth while to take the precautions thus suggested. In using the X-rays in cavities of the body, Dr. Williams believes that they should be employed through funnels of glass, instruments easily used and absolutely shutting off the rays from all points that it is not desired to affect. This protection for the healthy tissues, especially the healthy mucous membrane, is very important and should not be neglected. The danger at the present moment is that, in the enthusiastic use of the X-rays by unskilled operators, serious damage will be done, bringing this method of treatment into uncalled for disrepute. Insistence on precautions that seem demanded by the experience of operators who have extensively used this method of treatment is an extremely important matter. No harm can possibly result, the patient will be better protected, no true therapeutic effect of the X-rays is diminished and a proper sense of security in their employment is obtained.

NEW YORK ACADEMY OF MEDICINE.

Section on Orthopedic Surgery.

Stated Meeting, Held January 17, 1902.

George R. Elliott, M.D., Chairman.

Webbed Fingers.—Dr. W. R. Townsend presented a baby four months old, showing a mild type of webbed fingers. The webbed hand was the smaller, the fore and middle fingers showing the web; no other congenital deformities were present. No explanation was offered to account for the extreme smallness of the webbed hand.

Hemihypertrophy of the Bones of the Face and Head.—Dr. Townsend also presented the case of a girl four years old. The right side of the face and head seemed larger. When first seen edematous tissue over the back of the head rendered it difficult to determine whether the bones were enlarged or not. The edema subsequently decreased and an increased size of the occipital and right parietal bones was manifest. The frontal bone was not involved, but the right inferior maxillary bone appeared enlarged. There was no history of syphilis; lower extremities were developed. The child had an enlarged abdomen and the deformity known as chicken-breast. The exact diagnosis was puzzling, the question being whether it was leontiasis or rachitis.

Aspiration Treatment of Abscesses.—A boy, eight years old, was also presented by Dr. Townsend, who, January 9, 1901, gave the history of hip disease of one year's duration. There was an abscess on the outer aspect of the thigh which was aspirated April 6th; it refilled, was again aspirated on April 29th and again on May 11th. The abscess did not recur. The case was presented to illustrate the successful treatment of these abscesses by aspiration. He said abscesses not interfering with application of braces, those not burrowing, and those not in a condition of mixed infection could be safely let alone or aspirated.

Dr. Nathan, in discussing the case of hemihypertrophy, stated that after careful study of the literature of reported cases of leontiasis ossea, it did not appear that there was any agreement between authorities as to the definite lesions constituting this condition. All the reported cases differed from one another and the one presented differed in many respects from all cases noted in the literature of the subject. He said that originally

in the case presented there was a distinct cleft in the occipital bone. There was certainly some enlargement of the occipital bone as determined by measurements, but the hypertrophy of the soft parts over the lower maxilla made it difficult to measure that bone.

Dr. V. P. Gibney, in discussing the case of abscess treated by aspiration, presented statistics from his private records of twenty-three cases treated by aspiration, fifteen of which were cured. Of these fifteen, in three cases the aspiration was done once; in four cases, twice; in four cases, three times; in four cases, four or more times. Of the remaining eight, three were aspirated once, but the needle was large and caused leakage and sinus formation; four were aspirated twice; in one spontaneous opening took place a few days later. In all cases not cured there was no damage done by the aspiration.

Dr. T. Halsted Myers expressed himself as in favor of non-operative treatment when the tuberculous abscesses were not infected and were not interfering with the patient's health or threatening another joint. He had seen many cases cured without operative interference and considered this best in dispensary practice; aspiration should be tried before more radical operative measures.

Dr. R. H. Sayre said that he had aspirated frequently and sometimes secured good results, sometimes not. He had seen many cases get well without treatment and cited one case of recurrent abscess of the thigh; if these abscesses could not be opened and kept surgically clean, he advised aspiration, or, if this were not practicable, that they be let alone.

Dr. George R. Elliott asked Dr. Gibney if his statistics included any spinal abscesses.

Dr. Gibney replied that they referred to abscesses connected with the hip only. He further stated that he had had cases of spontaneous disappearance, but that most of the psoas abscesses had been of long duration that had been given up under the expectant plan of treatment.

Torticollis.—Dr. Royal Whitman presented the case of a boy twelve years of age, illustrating treatment of severe torticollis by the open incision with overcorrection of the deformity. The operation was performed November 7, 1901, and resulted in correction of the deformity with no limitation of motion, all resistant structures were divided, the two insertions of the sternocleidomastoid muscle and the cervical fascia being the most important.

Dr. Myers said the operation should be done early. He had seen cases left until the individual was fifteen years old, in which the sternal ends of the clavicles had been partially dislocated upward by the short sternocleidomastoid; this was a deformity difficult to correct.

Congenital Anterior Displacement of the Hip.—Dr. Whitman presented a girl five years old, illustrating congenital anterior displacement of the hip. He said ordinary methods of replacement were not successful in such cases and whatever treatment was adopted must be supplemented by osteotomy of the femur, otherwise the head of the bone would be displaced when the parallelism of the limbs was restored.

Dr. Fiske said he thought the condition should be regarded as a superior displacement rather than anterior.

Dr. Whitman replied that he understood the term congenital anterior displacement of the hip to indicate that the head of the femur was directed forward, lying below and to the outer side of the anterior superior spine.

Dr. Whitman also presented a child aged three years. The non-cutting operation had been performed one year previously. The plaster bandage was worn only seven months. This illustrated the fact that in certain cases of a favorable type cure might be accomplished in a short time, cure meaning both as to function and position. It was impossible to say from observation which hip had been originally displaced.

Double Congenital Hip Dislocation Treated by the Open Method.—Dr. Whitman presented a patient, a girl seven years of age, upon whom he had operated by the open method three years previously. The patient now walks with but slight swaying of the body; the lordosis has completely disappeared, and the permanency of the cure is assured by the lapse of time; there is practically no restriction of normal motion.

Dr. Elliott asked if the two operations were performed at the same time and if much acetabular scooping had been done.

Dr. Whitman replied that the operations were performed about three weeks apart; the heads of the bones in this case were easily replaced and very little scooping was necessary; he considered one advantage of the scooping that it caused adhesions which bound the bones more firmly and prevented subsequent displacement; the amount of scooping differed in different cases, some requiring a great deal, while in others simple arthrotomy might be sufficient. He further stated that after operations of this character the fixation bandage should be employed for many months, exercise and passive motion being useless until complete repair had taken place. In one instance he had fixed the limb for eight months and at the end of that time the motion was far less restricted than in the majority of cases in which the restraint had been removed soon after the operation.

Phocomelia.—Dr. Henry Ling Taylor presented the case of a girl five and one-half years old, the second of four children; no developmental anomalies in the family. The mother stated that the feet presented, and that something was wrong with the shoulder at birth, which was rectified by the physician. When the child began to walk at fourteen months, a slight lameness on the left side was noticed which has persisted. Motion at the hip was normal, but the left leg was two inches shorter than the right, the shortening being confined to the femur; the trochanters were in normal position and the classical signs of congenital dislocation and coxa vara were absent. He offered the diagnosis of congenital shortening of the left femur, confirmed by a skiagraph which showed the femur to be short and small. The points of interest were the differential diagnosis, the slight lameness with considerable shortening, which was the rule when the joint motion and muscular power were good, and the absence of true lateral curvature with a markedly sloping pelvis, which was also the rule.

Dr. Elliott asked Dr. Taylor for the etymology of the word phocomelia. Dr. Taylor replied that it was derived from two Greek words meaning seal and limb, the combination being equivalent to flipper deformity. The term had reference to imperfect development in length of one or more of the long bones of the extremities.

Dr. Sayre considered that the term phocomelia should be restricted to the extreme cases in which the long bones were either absent or almost entirely so, but Dr. Taylor responded that Kummel, Klaussner and other authorities applied the term to such cases as the one presented.

Dr Alfred Taylor presented a case of webb fingers. The patient was operated on recently, but some of the fingers were in a condition to show the results of the operation. The patient, a boy, was born with three fingers of each hand entirely webbed to the tips. On the middle and ring fingers of both hands the bases of the

terminal phalanges had grown together, the little finger showed no bony union. The first operation was done in November on the little finger of the left hand. Later the entire condition of the right hand was relieved by operation. The method was to make an incision on the dorsum of one finger and palmar surface of the other, dissect up the flaps, using the opposite flaps to cover the fingers. In the little finger primary union was obtained. Instead of making a crosscut at the base of the flap or instead of making a V-shaped flap, the incision was simply carried to the full distance up toward the web in each case, when it was found that by suturing the edges together the edge of one flap would obliquely cross the edge of the other in an opposite direction, the two edges meeting in the middle. This method worked very well.

"The Operative Treatment of Webbed Fingers with Presentation of Cases."—This was the title of a paper read by Dr. Sayre. He reviewed briefly the classical methods of operation and illustrated on a model his method of operation, by making a flap for one finger and grafting to cover the other, then taking an A-shaped flap from the dorsum of the hand, slipping it over and stitching it to the palm to form the bottom of the web. In methods which did not employ a graft from some other part of the body to cover the inner side of one finger, the effort was made to cover a defect with insufficient material, since the web connecting two contiguous fingers was much less extensive than the amount of skin which would cover the contiguous margins of those fingers normally and pass into the interdigital cleft. For demonstration a stuffed glove of one color was slipped inside one of a different color, the fingers of the latter being sewed together to present webbing after the removal of the piece of kid lying on the contiguous sides of the webbed fingers.

Dr. Myers considered grafting a great improvement over the other methods in these cases. Only the bottom of the cleft need be covered by a flap.

Dr. V. P. Gibney stated that he had always used the Didot method of operation, but thought Dr. Sayre's plan an excellent one.

Dr. Sayre presented a patient upon whom he had operated for webbed fingers. The fingers were webbed to the tips and the phalanges united by bony union. The case illustrated the method of making a flap for one finger and using skin graft for the other.

BOOK REVIEWS.

Practical Medicine Series of Year-Books. General Surgery. Edited by Dr. John B. Murphy. The Year-Book Publishers, Chicago.

In the admirable library comprised in the "Practical Medicine Series of Year-Books," the volume on Surgery for the past twelve months was assigned to Prof. Murphy of Chicago. The name of the editor is a sufficient guarantee of the practical value of the book, which is written from the standpoint of the clinician and of the operative surgeon rather than from that of the pathologist or of the student.

Every branch of the subject, from anesthetics to military surgery, is discussed in such a way that the reader arrives at a very fair idea of the most notable advances that have been made, and also of the critical attitude of the rest of the profession toward the theories that have recently been advanced. The various topics, including such matters as spinal anesthesia, the etiology of tumors, the new methods of diagnosis in kidney diseases, and so forth, are treated with marked fairness and impartiality. The only fault which one could find with the volume is that it takes comparatively too little note of foreign contributions, although the American journals are very well sifted and analyzed.

Lamarck. The Founder of Evolution. His Life and Work. With Translations of his Writings on Organic Evolution. By Alpheus S. Packard, M.D., LL.D. Longmans, Green and Co., New York, London and Bombay.

It is not a rare occurrence in this hurly-burly world that the germs of fruitful and even epoch-making ideas are lost for many a year to break forth into life and vigor. At the present time when Neo-Lamarckism and Neo-Darwinism are set forth as rival claimants to the position of the true light of interpretation for evolution it is a pleasure to have a work of this kind and to learn more of the life of a man whose great ideas were lost in the light of Darwin's intellect.

Dr. Packard, whose work with insects has endeared him to every student of this branch of science, has given us a labor of love in this excellent biography. In his own inimitable style he has made Lamarck a living personality and he has moreover set before the science-loving world a clearer picture of the fundamentals of organic evolution than has been vouchsafed for many a year.

We recommend this volume most cordially to all those who enjoy the story of the lives of those who have made science.

The Principles of Pathological Histology. By Harvey R. Gaylord, M.D., Professor of Surgical Pathology in the University of Buffalo, and Ludwig Aschoff, M.D., Professor and First Assistant in the Pathological Institute of Göttingen. With an Introductory Note by William H. Welch, M.D. Lea Brothers & Co., New York and Philadelphia.

For beauty of illustration and marked originality in conception this work stands out in sharp contrast to other works along similar lines of study. The reviewer does not recall any work of just this character as having appeared in recent years at least. It has all the advantages of a collaboration with a coworker in Professor Orth's laboratory at Göttingen and is adapted to the use of American students at the same time.

Each year sees marked improvement in the text-books for students of medicine in the United States, and it may be asserted without fear of contradiction that the present work is one of the best results of the art of good book-making and withal an immensely valuable guide to the student of pathological histology.

The work is to be most cordially commended as complete, authoritative, and at the same time a work of art. The chapter on Photomicrography is especially commendable for its simplicity as well as for its thoroughness.

Studies in Physiological Chemistry. Being Reprints of the more Important Studies Issued from the Laboratory of Physiological Chemistry, Sheffield Scientific School of Yale University, during the years 1897-1900. Edited by R. H. Chittenden, Ph.D., Professor of Physiological Chemistry and Director of the Sheffield Scientific School. Charles Scribner's Sons, New York.

There is one feature of this work that impresses the reviewer above all others and which makes it even more important and pleasant to speak of the man than of the work. There is a great fertility of intellect, a driving energy and a great sympathetic interest, all made manifest in the records of Dr. Chittenden's work. In the opening pages a bibliography is appended of a large list of studies in which, one after another, the guiding and

stimulating interest of the teacher has trained the young student along lines of great usefulness.

Such men are needed in the medical schools of this country and it is a pleasure to note that there are to be found, now all over the country, many of them trained in this self-same laboratory of the work of which the present volume is but an index.

It is gratifying to the student trained in physiological chemistry to be able to have these collected essays of the last three years in a handy volume. We trust that many such volumes may be issued.

A System of Physiologic Therapeutics. Edited by Solomon Solis Cohen, A.M., M.D. Volume VI., Dietotherapy and Food in Health. By Nathan S. Davis, Jr., A.M., M.D. P. Blakiston's Son & Co., Philadelphia.

It is a cheerful sign of the times that the practising physician has made for his use text-books on practical subjects which closely follow the onward march of the more technical subjects. Such are, in the reviewers' parlance, termed "up to date." This work is of this class, and not yet wholly has the author been enabled to shake away from many of the traditional garments which have covered the dry bones of physiological chemistry.

When conflict seems to arise in the matter of food products and their values, between the chemist and the clinician, it behooves both to examine their ground more thoroughly, in order that the former may recognize the difference between test-tube reactions, strict physical chemics and the living chemistry of the body; and in order that the clinician may make haste slowly in jumping to conclusions as to the why and wherefore of good or bad results obtained.

The present work exemplifies in some measure an avoidance of both difficulties by calmly bolting both boluses and letting the reader work out his own salvation. Still, there is too little of this in any way to detract from the usefulness of the work. It is a very excellent one and is worthy of the highest commendation.

A Text-Book of Pharmacology and Some Allied Sciences (Therapeutics, Materia Medica, Pharmacy, Prescription-Writing, Toxicology, etc.). By Torald Sollmann, M.D., Assistant Professor of Pharmacology and Materia Medica in the Medical Department of the Western Reserve University, Cleveland, Ohio. W. B. Saunders and Co., Philadelphia and London.

It has rarely been our fortune to review so clear, concise and well-arranged a work as this treatise by Dr. Sollmann, which will, no doubt, quickly gain that confidence among students which it justly deserves. The pharmacist will find welcome information which other books on the same subject usually neglect and which nevertheless are essential for the broader conception of the subject.

The introductory chapters treat of pharmacognosy and the method of pharmacy and prescribing, then follow materia medica and therapeutics proper, while the last hundred pages consist of a chapter on practical exercises in chemistry and a very valuable one on the general technic of pharmacological research to which are appended several tables on solubility and dosage. Both the metric and the old system of weights are used and the British Pharmacopœia is considered, as well as our own. Short articles interspersed among the text upon the mechanism of the normal physiological processes greatly help to elucidate the action of the drugs and the tables comparing those of the same class with each other will prove of great value.

That the book is thoroughly up to date is proven by the consideration of such drugs as heroin, dionin, eucaine, hedonal, etc., and by articles on the subarachnoid injections of cocaine, and on internal secretions.

We regret to see that the dose of dionin has been omitted and that no mention has been made of the fluorides in the paragraph on preservation of food. Phloridzin among internal secretions is rather out of place and the toxicology could be a little more full, especially of such drugs as arsenic.

The article on anesthesia is good and worthy of a purely medical book; the same may be said of the very excellent table on antitoxins and protective serums. On the other hand, the chapter on specific infections is unnecessary in a book of this character, and, on account of its briefness, is scarcely instructive. There are about 100 illustrations, in the main schematic. We consider the book one of the best of its class and wish it every success.

The Perverts. By William Lee Howard, M.D. G. W. Dillingham, New York.

In novel form the author has most skilfully depicted the clinical history of a neurotic family. Sprung from the union of a worn-out man with partly "dried up New England school teacher," as the author puts it. Three daughters and one son, the hero, result from this marriage.

The chief interest centers in the son who has dipsomaniacal attacks. These are exceedingly well sketched and the author is to be congratulated on handling this difficult subject in so just and sensible a manner. His presentation has the fulness of truth in it. The hero is saved by his own study of the morbid process, as he is a physician, and he is helped by a sympathetic and noble woman whom he weds. One sister is a dominant figure in the story; she develops scientific tastes, enjoys animal experimentation, uses bacteria-infected whistles in trying to poison off her nephew and finally develops the erotic perversions of the flagellants.

The story is well told and offers an interesting study in morbid psychology.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Compend of General Pathology. By Dr. A. E. Thayer. 12mo., 321 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Handbook of Bacteriological Diagnosis for Practitioners. By Dr. W. D'Este Emery. 8vo., 216 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Enzymes and their Applications. By Dr. J. Effront. Translated by S. C. Prescott, S. B. Vol. I., The Oxidases. 8vo., 320 pages. John Wiley & Sons, New York. $3.

Les Filatures de Lin. By Dr. D. Glibert. 8vo., 465 pages. Illustrated. Brussels.

The Pocket Gray or Anatomist's Vade-Mecum. By Dr. E. Cotterell. Fifth Edition, Revised and Edited. C. H. Fagge, 12mo., 270 pages. William Wood and Company, New York.

The American Year-Book of Medicine and Surgery. Edited by Dr. G. M. Gould. 2 vols. 8vo. W. B. Saunders & Company, Philadelphia and London.

Vier Vorlesungen aus der Allgemeinen Pathologie des Nervensystems. By Dr. F. W. Mott. 8vo., 112 pages. Illustrated. J. F. Bergmann, Wiesbaden; Stechert, New York.

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